



DATE: February 2, 2011  
TO: Philip Campagna, ERT Work Assignment Manager  
FROM: Antonio LoSurdo, SERAS QA/QC Chemist   
THRU: Deborah Killeen, SERAS QA/QC Officer   
SUBJECT: Verification of Delayed Coker Unit Release Data

## INTRODUCTION

SERAS personnel were requested to validate the TPH and PAH data for the water samples analyzed by Louisiana State University (LSU) for the Delayed Coker Unit Release. Raw data for a total of 58 water samples along with the standards and quality control (QC) samples were requested along with a copy of the standard operating procedure (SOP) used to analyze these samples. LSU-RCAT SOP#001-08 titled "Standard Operating Procedure for Oil Spill Source Identification" was received and reviewed by SERAS personnel.

During the review, it was noted that this method is used for general qualitative oil characterizations and quantitative analysis of a list of target compounds found in oil. This SOP is based on American Society for Testing and Materials (ASTM) D-5739-00 and EPA SW-846 Method 8270. Because this SOP does not routinely require a decafluorotriphenylphosphine (DFTPP) tune, it was determined that the PAH data could not be validated in accordance with the National Functional Guidelines since all PAH data would be rejected under these circumstances. The LSU SOP does not require a resolution check or a mass resolution check. Instead a decision was made to verify the data based on the SOP supplied by LSU. Verification confirms by examination of the raw data that the specified requirements of the SOP had been followed.

## VERIFICATION FINDINGS

SERAS personnel reviewed the submitted data using the following data categories to verify the data: Holding Time, Instrument Performance Check, Method Blanks, Calibration (Initial and Continuing), Internal Standards, Laboratory Control Samples, Duplicate Analysis, Compound Identification and Reporting Limits.

**Holding Time** – All samples were analyzed within holding time based on the documentation supplied. Chain of custody (COC) records were not available for the 48 samples extracted by Pace Analytical. The collection time recorded on Pace's extraction log records that appears to be generated by their Laboratory Information Management System (LIMS) was used to verify collection dates.

**Instrument Performance Check** – Perfluorotributylamine (PFTBA) was used to auto-tune the Gas Chromatograph/Mass Spectrometer (GC/MS) in accordance with the LSU SOP. Environmental applications also require the use of DFTPP to verify the tune for PAHs (EPA Method 8270), which was not used by LSU. DFTPP is not required by ASTM D5739-00.

**Method Blanks** – TPH concentrations were less than the method detection limits (MDLs) and the reporting limits (RLs). There were concentrations of PAHs present in the method blank under the RL but above the MDL.

**Initial Calibration** – The percent relative standard deviation (%RSD) and the average relative response factors (RRFs) met the QC criteria stipulated in standard EPA methods. It was assumed that the data submitted in the spreadsheet from LSU is correct since it was not possible to verify the raw data directly from the instrument. This includes area responses and retention times.

Continuing Calibration – The percent difference (%D) met the  $\pm 20\%$  criteria in the LSU SOP with the exception of three compounds in one continuing calibration. As stated above under the initial calibration, it is assumed that the data submitted in the spreadsheet from LSU is correct since it was not possible to verify the raw data directly from the instrument. This includes area responses and retention times.

Internal Standards – Retention times could not be evaluated for any of the standards, samples or QC samples since this information is not captured into the spreadsheets used by LSU. The internal standard responses met the criteria stipulated in standard EPA methods.

Laboratory Control Sample – A laboratory control sample (LCS) and a LCS duplicate (LCSD) for TPH were available for the 10 samples extracted by LSU. The TPH recoveries and the relative percent difference (%RPD) were acceptable. LCS/LCSD samples for PAHs were extracted for the three batches extracted by Pace Analytical.

Compound Identification and Quantitation – The initial data received from LSU did not take into account that the sample injection volume is 2  $\mu\text{L}$  instead of the 1  $\mu\text{L}$  used for the standards. As a result, all results were corrected by a factor of 2. Some compounds initially reported as a “U” under the MDL on the corrected tables are now above the MDL but under the RL (Refer to Attachment 1). The MDLs and RQLs reported for RCAT No. 2010356-13 reflects a 10 time dilution for all of the compounds except nC-10 Decane. This cannot be confirmed and SERAS is under the assumption that these MDLs and RLs should be adjusted to reflect a straight run.

## **CONCLUSIONS AND RECOMMENDATIONS**

TPH and PAH data were generated for 58 water samples by LSU in accordance with LSU-RCAT SOP#001-08. This method is an oil fingerprinting method for oil analytes. The TPH and PAH data are acceptable based on the requirements of the LSU SOP.

If a crosswalk between the samples analyzed by LSU and the ERT/SERAS Laboratory can be made, the use of two independent methods may lend credence to the acceptability of the PAH data not analyzed with a DFTPP verification tune.

Cc: Central Files, SERAS-116  
Electronic File SERAS-116-DTM-020211  
Phil Solinski, SERAS Task Leader  
Dennis Miller, SERAS Program Manager

ATTACHMENT 1  
Final Results – Corrected  
Technical Memorandum  
February 2011

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	152791 BLANK	152792 LCS	152793 LCSD	3523810-001 PS
RCAT ID	2010355-01	2010355-02	2010355-03	2010355-04
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1000	1000	1000	1051
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	0.015 J	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	0.041 J	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	0.049 J
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	0.045 J
nC-24 Tetracosane	U	U	U	0.067 J
nC-25 Pentacosane	U	U	U	0.237 J
nC-26 Hexacosane	U	U	U	0.195 J
nC-27 Heptacosane	U	U	U	0.202 J
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	0.201 J
nC-30 Triacontane	U	U	U	0.116 J
nC-31 Hentriacontane	U	U	U	0.128 J
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.000</b>	<b>0.056</b>	<b>0.080</b> <i>0.017</i>	<b>1.24</b>

## Surrogate Recovery (%)

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	152791 BLANK	152792 LCS	152793 LCSD	3523810-001 PS
RCAT ID	2010355-01	2010355-02	2010355-03	2010355-04
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0.000	0	0	0
Sample Size	1000	1000	1000	1051
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	2960	2960	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	4640	4520	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	4270	4240	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	4790	4540	U
Fluoranthene	U	3850	3770	U
Pyrene	U	3820	3770	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	3760	3810	U
Chrysene	U	4430	4420	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	4230	4800	U
Benzo (k) Fluoranthene	U	4340	4760	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	3590	3620	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	1990	1980	U
Dibenzo (a,h) anthracene	U	2380	2320	U
Benzo (g,h,i) perylene	U	1740	1730	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>50800</b>	<b>51300</b>	<b>0.000</b>
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	152791 BLANK		152792 LCS		152793 LCSD		3523810-001 PS	
RCAT ID	2010355-01		2010355-02		2010355-03		2010355-04	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1000		1000		1000		1051	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.017	1.000	0.017	1.000	0.017	1.000	0.016	0.951
nC-11 Undecane	0.012	0.952	0.013	1.000	0.013	1.000	0.012	0.951
nC-12 Dodecane	0.014	0.952	0.015	1.000	0.015	1.000	0.014	0.951
nC-13 Tridecane	0.011	0.952	0.011	1.000	0.011	1.000	0.011	0.951
nC-14 Tetradecane	0.026	0.952	0.027	1.000	0.027	1.000	0.026	0.951
nC-15 Pentadecane	0.023	0.952	0.024	1.000	0.024	1.000	0.023	0.951
nC-16 Hexadecane	0.021	0.952	0.022	1.000	0.022	1.000	0.021	0.951
nC-17 Heptadecane	0.046	0.952	0.048	1.000	0.048	1.000	0.046	0.951
Pristane	0.044	0.952	0.046	1.000	0.046	1.000	0.044	0.951
nC-18 Octadecane	0.067	0.952	0.070	1.000	0.070	1.000	0.067	0.951
Phytane	0.069	0.952	0.073	1.000	0.073	1.000	0.069	0.951
nC-19 Nonadecane	0.038	0.952	0.039	1.000	0.039	1.000	0.037	0.951
nC-20 Eicosane	0.039	0.952	0.041	1.000	0.041	1.000	0.039	0.951
nC-21 Heneicosane	0.033	0.952	0.034	1.000	0.034	1.000	0.033	0.951
nC-22 Docosane	0.066	0.952	0.070	1.000	0.070	1.000	0.066	0.951
nC-23 Tricosane	0.037	0.952	0.039	1.000	0.039	1.000	0.037	0.951
nC-24 Tetracosane	0.059	0.952	0.062	1.000	0.062	1.000	0.059	0.951
nC-25 Pentacosane	0.186	0.952	0.195	1.000	0.195	1.000	0.185	0.951
nC-26 Hexacosane	0.157	0.952	0.165	1.000	0.165	1.000	0.157	0.951
nC-27 Heptacosane	0.124	0.952	0.130	1.000	0.130	1.000	0.124	0.951
nC-28 Octacosane	0.199	0.952	0.208	1.000	0.208	1.000	0.198	0.951
nC-29 Nonacosane	0.150	0.952	0.157	1.000	0.157	1.000	0.149	0.951
nC-30 Triacontane	0.083	0.952	0.087	1.000	0.087	1.000	0.083	0.951
nC-31 Hentriacontane	0.084	0.952	0.088	1.000	0.088	1.000	0.084	0.951
nC-32 Dotriacontane	0.048	0.952	0.051	1.000	0.051	1.000	0.048	0.951
nC-33 Tritriacontane	0.070	0.952	0.074	1.000	0.074	1.000	0.070	0.951
nC-34 Tetratriacontane	0.069	0.952	0.073	1.000	0.073	1.000	0.069	0.951
nC-35 Pentatriacontane	0.034	0.952	0.036	1.000	0.036	1.000	0.034	0.951

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	152791 BLANK			152792 LCS			152793 LCSD			3523810-001 PS		
RCAT ID	2010355-01			2010355-02			2010355-03			2010355-04		
Sample Matrix	Water			Water			Water			Water		
Analytical Instrument	Mustang			Mustang			Mustang			Mustang		
% Moisture	0			0			0			0		
% Lipid	0			0			0			0		
Sample Size	1000			1000			1000			1051		
Sample Unit-Basis	ml			ml			ml			ml		
Units	ng/L			ng/L			ng/L			ng/L		
	MDL	RQL		MDL	RQL		MDL	RQL		MDL	RQL	
Naphthalene	0.225	5.000		0.225	5.000		0.225	5.000		0.225	5.000	
C1-Naphthalenes	0.225	5.000		0.225	5.000		0.225	5.000		0.225	5.000	
C2-Naphthalenes	0.225	5.000		0.225	5.000		0.225	5.000		0.225	5.000	
C3-Naphthalenes	0.225	5.000		0.225	5.000		0.225	5.000		0.225	5.000	
C4-Naphthalenes	0.225	5.000		0.225	5.000		0.225	5.000		0.225	5.000	
Fluorene	0.514	5.000		0.514	5.000		0.514	5.000		0.514	5.000	
C1-Fluorenes	0.514	5.000		0.514	5.000		0.514	5.000		0.514	5.000	
C2-Fluorenes	0.514	5.000		0.514	5.000		0.514	5.000		0.514	5.000	
C3- Fluorenes	0.514	5.000		0.514	5.000		0.514	5.000		0.514	5.000	
Dibenzothiophene	0.659	5.000		0.659	5.000		0.659	5.000		0.659	5.000	
C1-Dibenzothiophenes	0.659	5.000		0.659	5.000		0.659	5.000		0.659	5.000	
C2-Dibenzothiophenes	0.659	5.000		0.659	5.000		0.659	5.000		0.659	5.000	
C3- Dibenzothiophenes	0.659	5.000		0.659	5.000		0.659	5.000		0.659	5.000	
Phenanthrene	0.383	5.000		0.383	5.000		0.383	5.000		0.383	5.000	
C1-Phenanthrenes	0.383	5.000		0.383	5.000		0.383	5.000		0.383	5.000	
C2-Phenanthrenes	0.383	5.000		0.383	5.000		0.383	5.000		0.383	5.000	
C3-Phenanthrenes	0.383	5.000		0.383	5.000		0.383	5.000		0.383	5.000	
C4-Phenanthrenes	0.383	5.000		0.383	5.000		0.383	5.000		0.383	5.000	
Anthracene	0.398	5.000		0.398	5.000		0.398	5.000		0.398	5.000	
Fluoranthene	0.683	5.000		0.683	5.000		0.683	5.000		0.683	5.000	
Pyrene	0.809	5.000		0.809	5.000		0.809	5.000		0.809	5.000	
C1- Pyrenes	0.809	5.000		0.809	5.000		0.809	5.000		0.809	5.000	
C2- Pyrenes	0.809	5.000		0.809	5.000		0.809	5.000		0.809	5.000	
C3- Pyrenes	0.809	5.000		0.809	5.000		0.809	5.000		0.809	5.000	
C4- Pyrenes	0.809	5.000		0.809	5.000		0.809	5.000		0.809	5.000	
Naphthobenzothiophene	0.659	5.000		0.659	5.000		0.659	5.000		0.659	5.000	
C-1 Naphthobenzothiophenes	0.659	5.000		0.659	5.000		0.659	5.000		0.659	5.000	
C-2 Naphthobenzothiophenes	0.659	5.000		0.659	5.000		0.659	5.000		0.659	5.000	
C-3 Naphthobenzothiophenes	0.659	5.000		0.659	5.000		0.659	5.000		0.659	5.000	
Benzo (a) Anthracene	1.098	5.000		1.098	5.000		1.098	5.000		1.098	5.000	
Chrysene	1.098	5.000		1.098	5.000		1.098	5.000		1.098	5.000	
C1- Chrysenes	1.098	5.000		1.098	5.000		1.098	5.000		1.098	5.000	
C2- Chrysenes	1.098	5.000		1.098	5.000		1.098	5.000		1.098	5.000	
C3- Chrysenes	1.098	5.000		1.098	5.000		1.098	5.000		1.098	5.000	
C4- Chrysenes	1.098	5.000		1.098	5.000		1.098	5.000		1.098	5.000	
Benzo (b) Fluoranthene	0.751	5.000		0.751	5.000		0.751	5.000		0.751	5.000	
Benzo (k) Fluoranthene	0.706	5.000		0.706	5.000		0.706	5.000		0.706	5.000	
Benzo (e) Pyrene	1.009	5.000		1.009	5.000		1.009	5.000		1.009	5.000	
Benzo (a) Pyrene	0.843	5.000		0.843	5.000		0.843	5.000		0.843	5.000	
Perylene	0.268	5.000		0.268	5.000		0.268	5.000		0.268	5.000	
Indeno (1,2,3 - cd) Pyrene	1.960	5.000		1.960	5.000		1.960	5.000		1.960	5.000	
Dibenzo (a,h) anthracene	1.711	5.000		1.711	5.000		1.711	5.000		1.711	5.000	
Benzo (g,h,i) perylene	2.206	5.000		2.206	5.000		2.206	5.000		2.206	5.000	

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523811-001 PS	3523812-001 PS	3523813-001 PS	3523814-001 PS
RCAT ID	2010355-05	2010355-06	2010355-07	2010355-08
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1050	1048	1028	1044
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	U	U	U
nC-17 Heptadecane	U	0.053 J	U	U
Pristane	U	0.087 J	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	0.037 J	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	0.059 J	0.057 J	0.061 J	0.042 J
nC-24 Tetracosane	0.082 J	0.072 J	0.097 J	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	0.142 J	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	0.263 J	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	0.034 J	U	U
<b>Total Alkanes</b>	<b>0.140</b>	<b>0.745</b>	<b>0.158</b>	<b>0.042</b>

---

Surrogate Recovery (%)

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

---



## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523811-001 PS	3523812-001 PS	3523813-001 PS	3523814-001 PS
RCAT ID	2010355-05	2010355-06	2010355-07	2010355-08
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0	0	0	0
Sample Size	1050	1048	1028	1044
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	0.248 J	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.248</b>	<b>0.000</b>

**% Surrogate Recovery**

Phenanthrene d-10	0	0	0	0
-------------------	---	---	---	---

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523811-001 PS		3523812-001 PS		3523813-001 PS		3523814-001 PS	
RCAT ID	2010355-05		2010355-06		2010355-07		2010355-08	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1048		1028		1044	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.952	0.016	0.954	0.017	0.973	0.016	0.958
nC-11 Undecane	0.012	0.952	0.012	0.954	0.012	0.973	0.012	0.958
nC-12 Dodecane	0.014	0.952	0.014	0.954	0.014	0.973	0.014	0.958
nC-13 Tridecane	0.011	0.952	0.011	0.954	0.011	0.973	0.011	0.958
nC-14 Tetradecane	0.026	0.952	0.026	0.954	0.026	0.973	0.026	0.958
nC-15 Pentadecane	0.023	0.952	0.023	0.954	0.023	0.973	0.023	0.958
nC-16 Hexadecane	0.021	0.952	0.021	0.954	0.022	0.973	0.021	0.958
nC-17 Heptadecane	0.046	0.952	0.046	0.954	0.047	0.973	0.046	0.958
Pristane	0.044	0.952	0.044	0.954	0.045	0.973	0.044	0.958
nC-18 Octadecane	0.067	0.952	0.067	0.954	0.069	0.973	0.067	0.958
Phytane	0.069	0.952	0.069	0.954	0.071	0.973	0.070	0.958
nC-19 Nonadecane	0.038	0.952	0.038	0.954	0.038	0.973	0.038	0.958
nC-20 Eicosane	0.039	0.952	0.040	0.954	0.040	0.973	0.040	0.958
nC-21 Heneicosane	0.033	0.952	0.033	0.954	0.033	0.973	0.033	0.958
nC-22 Docosane	0.066	0.952	0.066	0.954	0.068	0.973	0.067	0.958
nC-23 Tricosane	0.037	0.952	0.037	0.954	0.038	0.973	0.037	0.958
nC-24 Tetracosane	0.059	0.952	0.059	0.954	0.060	0.973	0.059	0.958
nC-25 Pentacosane	0.186	0.952	0.186	0.954	0.189	0.973	0.187	0.958
nC-26 Hexacosane	0.157	0.952	0.157	0.954	0.160	0.973	0.158	0.958
nC-27 Heptacosane	0.124	0.952	0.124	0.954	0.127	0.973	0.125	0.958
nC-28 Octacosane	0.199	0.952	0.199	0.954	0.203	0.973	0.200	0.958
nC-29 Nonacosane	0.150	0.952	0.150	0.954	0.153	0.973	0.150	0.958
nC-30 Triacontane	0.083	0.952	0.083	0.954	0.084	0.973	0.083	0.958
nC-31 Hentriacontane	0.084	0.952	0.084	0.954	0.086	0.973	0.085	0.958
nC-32 Dotriacontane	0.048	0.952	0.048	0.954	0.049	0.973	0.048	0.958
nC-33 Tritriacontane	0.070	0.952	0.071	0.954	0.072	0.973	0.071	0.958
nC-34 Tetratriacontane	0.069	0.952	0.069	0.954	0.071	0.973	0.069	0.958
nC-35 Pentatriacontane	0.034	0.952	0.034	0.954	0.035	0.973	0.034	0.958

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523811-001 PS		3523812-001 PS		3523813-001 PS		3523814-001 PS	
RCAT ID	2010355-05		2010355-06		2010355-07		2010355-08	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1048		1028		1044	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
C1-Naphthalenes	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
C2-Naphthalenes	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
C3-Naphthalenes	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
C4-Naphthalenes	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
Fluorene	0.514	5.000	0.514	5.000	0.514	5.000	0.514	5.000
C1-Fluorenes	0.514	5.000	0.514	5.000	0.514	5.000	0.514	5.000
C2-Fluorenes	0.514	5.000	0.514	5.000	0.514	5.000	0.514	5.000
C3- Fluorenes	0.514	5.000	0.514	5.000	0.514	5.000	0.514	5.000
Dibenzothiophene	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C1-Dibenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C2-Dibenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C3- Dibenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
Phenanthrene	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
C1-Phenanthrenes	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
C2-Phenanthrenes	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
C3-Phenanthrenes	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
C4-Phenanthrenes	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
Anthracene	0.398	5.000	0.398	5.000	0.398	5.000	0.398	5.000
Fluoranthene	0.683	5.000	0.683	5.000	0.683	5.000	0.683	5.000
Pyrene	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
C1- Pyrenes	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
C2- Pyrenes	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
C3- Pyrenes	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
C4- Pyrenes	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
Naphthobenzothiophene	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C-1 Naphthobenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C-2 Naphthobenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C-3 Naphthobenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
Benzo (a) Anthracene	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
Chrysene	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
C1- Chrysenes	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
C2- Chrysenes	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
C3- Chrysenes	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
C4- Chrysenes	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
Benzo (b) Fluoranthene	0.751	5.000	0.751	5.000	0.751	5.000	0.751	5.000
Benzo (k) Fluoranthene	0.706	5.000	0.706	5.000	0.706	5.000	0.706	5.000
Benzo (e) Pyrene	1.009	5.000	1.009	5.000	1.009	5.000	1.009	5.000
Benzo (a) Pyrene	0.843	5.000	0.843	5.000	0.843	5.000	0.843	5.000
Perylene	0.268	5.000	0.268	5.000	0.268	5.000	0.268	5.000
Indeno (1,2,3 - cd) Pyrene	1.960	5.000	1.960	5.000	1.960	5.000	1.960	5.000
Dibenzo (a,h) anthracene	1.711	5.000	1.711	5.000	1.711	5.000	1.711	5.000
Benzo (g,h,i) perylene	2.206	5.000	2.206	5.000	2.206	5.000	2.206	5.000

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523815-001 PS	3523816-001 PS	3523817-001 PS	3523818-001 PS
RCAT ID	2010355-09	2010355-10	2010355-11	2010355-12
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1052	1048	991	991
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	0.032 J	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	0.039 J	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.000</b>	<b>0.071</b>	<b>0.000</b>	<b>0.000</b>

**Surrogate Recovery (%)**

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523815-001 PS	3523816-001 PS	3523817-001 PS	3523818-001 PS
RCAT ID	2010355-09	2010355-10	2010355-11	2010355-12
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0.000	0	0	0
Sample Size	1052	1048	991	991
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523815-001 PS		3523816-001 PS		3523817-001 PS		3523818-001 PS	
RCAT ID	2010355-09		2010355-10		2010355-11		2010355-12	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1052		1048		991		991	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.951	0.016	0.954	0.017	1.009	0.017	1.009
nC-11 Undecane	0.012	0.963	0.012	0.954	0.013	1.009	0.013	1.009
nC-12 Dodecane	0.014	0.963	0.014	0.954	0.015	1.009	0.015	1.009
nC-13 Tridecane	0.011	0.963	0.011	0.954	0.011	1.009	0.011	1.009
nC-14 Tetradecane	0.026	0.963	0.026	0.954	0.027	1.009	0.027	1.009
nC-15 Pentadecane	0.023	0.963	0.023	0.954	0.024	1.009	0.024	1.009
nC-16 Hexadecane	0.022	0.963	0.021	0.954	0.023	1.009	0.023	1.009
nC-17 Heptadecane	0.046	0.963	0.046	0.954	0.048	1.009	0.048	1.009
Pristane	0.045	0.963	0.044	0.954	0.047	1.009	0.047	1.009
nC-18 Octadecane	0.068	0.963	0.067	0.954	0.071	1.009	0.071	1.009
Phytane	0.070	0.963	0.069	0.954	0.073	1.009	0.073	1.009
nC-19 Nonadecane	0.038	0.963	0.038	0.954	0.040	1.009	0.040	1.009
nC-20 Eicosane	0.040	0.963	0.040	0.954	0.042	1.009	0.042	1.009
nC-21 Heneicosane	0.033	0.963	0.033	0.954	0.035	1.009	0.035	1.009
nC-22 Docosane	0.067	0.963	0.066	0.954	0.070	1.009	0.070	1.009
nC-23 Tricosane	0.037	0.963	0.037	0.954	0.039	1.009	0.039	1.009
nC-24 Tetracosane	0.059	0.963	0.059	0.954	0.062	1.009	0.062	1.009
nC-25 Pentacosane	0.188	0.963	0.186	0.954	0.197	1.009	0.197	1.009
nC-26 Hexacosane	0.159	0.963	0.157	0.954	0.166	1.009	0.166	1.009
nC-27 Heptacosane	0.125	0.963	0.124	0.954	0.131	1.009	0.131	1.009
nC-28 Octacosane	0.201	0.963	0.199	0.954	0.210	1.009	0.210	1.009
nC-29 Nonacosane	0.151	0.963	0.150	0.954	0.158	1.009	0.158	1.009
nC-30 Triacontane	0.084	0.963	0.083	0.954	0.088	1.009	0.088	1.009
nC-31 Hentriacontane	0.085	0.963	0.084	0.954	0.089	1.009	0.089	1.009
nC-32 Dotriacontane	0.049	0.963	0.048	0.954	0.051	1.009	0.051	1.009
nC-33 Tritriacontane	0.071	0.963	0.071	0.954	0.075	1.009	0.075	1.009
nC-34 Tetratriacontane	0.070	0.963	0.069	0.954	0.073	1.009	0.073	1.009
nC-35 Pentatriacontane	0.035	0.963	0.034	0.954	0.036	1.009	0.036	1.009

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523815-001 PS		3523816-001 PS		3523817-001 PS		3523818-001 PS	
RCAT ID	2010355-09		2010355-10		2010355-11		2010355-12	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1052		1048		991		991	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.213	4.753	0.214	4.771	0.214	4.771	0.214	4.771
C1-Naphthalenes	0.213	4.753	0.214	4.771	0.214	4.771	0.214	4.771
C2-Naphthalenes	0.213	4.753	0.214	4.771	0.214	4.771	0.214	4.771
C3-Naphthalenes	0.213	4.753	0.214	4.771	0.214	4.771	0.214	4.771
C4-Naphthalenes	0.213	4.753	0.214	4.771	0.214	4.771	0.214	4.771
Fluorene	0.489	4.753	0.491	4.771	0.491	4.771	0.491	4.771
C1-Fluorenes	0.489	4.753	0.491	4.771	0.491	4.771	0.491	4.771
C2-Fluorenes	0.489	4.753	0.491	4.771	0.491	4.771	0.491	4.771
C3- Fluorenes	0.489	4.753	0.491	4.771	0.491	4.771	0.491	4.771
Dibenzothiophene	0.626	4.753	0.629	4.771	0.629	4.771	0.629	4.771
C1-Dibenzothiophenes	0.626	4.753	0.629	4.771	0.629	4.771	0.629	4.771
C2-Dibenzothiophenes	0.626	4.753	0.629	4.771	0.629	4.771	0.629	4.771
C3- Dibenzothiophenes	0.626	4.753	0.629	4.771	0.629	4.771	0.629	4.771
Phenanthrene	0.364	4.753	0.365	4.771	0.365	4.771	0.365	4.771
C1-Phenanthrenes	0.364	4.753	0.365	4.771	0.365	4.771	0.365	4.771
C2-Phenanthrenes	0.364	4.753	0.365	4.771	0.365	4.771	0.365	4.771
C3-Phenanthrenes	0.364	4.753	0.365	4.771	0.365	4.771	0.365	4.771
C4-Phenanthrenes	0.364	4.753	0.365	4.771	0.365	4.771	0.365	4.771
Anthracene	0.378	4.753	0.380	4.771	0.380	4.771	0.380	4.771
Fluoranthene	0.649	4.753	0.651	4.771	0.651	4.771	0.651	4.771
Pyrene	0.769	4.753	0.772	4.771	0.772	4.771	0.772	4.771
C1- Pyrenes	0.769	4.753	0.772	4.771	0.772	4.771	0.772	4.771
C2- Pyrenes	0.769	4.753	0.772	4.771	0.772	4.771	0.772	4.771
C3- Pyrenes	0.769	4.753	0.772	4.771	0.772	4.771	0.772	4.771
C4- Pyrenes	0.769	4.753	0.772	4.771	0.772	4.771	0.772	4.771
Naphthobenzothiophene	0.626	4.753	0.629	4.771	0.629	4.771	0.629	4.771
C-1 Naphthobenzothiophenes	0.626	4.753	0.629	4.771	0.629	4.771	0.629	4.771
C-2 Naphthobenzothiophenes	0.626	4.753	0.629	4.771	0.629	4.771	0.629	4.771
C-3 Naphthobenzothiophenes	0.626	4.753	0.629	4.771	0.629	4.771	0.629	4.771
Benzo (a) Anthracene	1.044	4.753	1.048	4.771	1.048	4.771	1.048	4.771
Chrysene	1.044	4.753	1.048	4.771	1.048	4.771	1.048	4.771
C1- Chrysenes	1.044	4.753	1.048	4.771	1.048	4.771	1.048	4.771
C2- Chrysenes	1.044	4.753	1.048	4.771	1.048	4.771	1.048	4.771
C3- Chrysenes	1.044	4.753	1.048	4.771	1.048	4.771	1.048	4.771
C4- Chrysenes	1.044	4.753	1.048	4.771	1.048	4.771	1.048	4.771
Benzo (b) Fluoranthene	0.714	4.753	0.717	4.771	0.717	4.771	0.717	4.771
Benzo (k) Fluoranthene	0.671	4.753	0.673	4.771	0.673	4.771	0.673	4.771
Benzo (e) Pyrene	0.959	4.753	0.963	4.771	0.963	4.771	0.963	4.771
Benzo (a) Pyrene	0.801	4.753	0.804	4.771	0.804	4.771	0.804	4.771
Perylene	0.255	4.753	0.256	4.771	0.256	4.771	0.256	4.771
Indeno (1,2,3 - cd) Pyrene	1.863	4.753	1.870	4.771	1.870	4.771	1.870	4.771
Dibenzo (a,h) anthracene	1.626	4.753	1.632	4.771	1.632	4.771	1.632	4.771
Benzo (g,h,i) perylene	2.097	4.753	2.105	4.771	2.105	4.771	2.105	4.771

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523819-001 PS	3523820-001 PS	3523821-001 PS	3523822-001 PS
RCAT ID	2010355-13	2010355-14	2010355-15	2010355-16
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1038	1050	1047	1038
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	U	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	0.082 J	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	0.041 J	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	0.129 J	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	0.233 J	U	U
nC-30 Triacontane	U	0.305 J	U	U
nC-31 Hentriacontane	U	0.466 J	U	0.136 J
nC-32 Dotriacontane	U	0.298 J	U	U
nC-33 Tritriacontane	U	0.243 J	U	U
nC-34 Tetratriacontane	U	0.184 J	U	U
nC-35 Pentatriacontane	U	0.161 J	U	0.056 J
<b>Total Alkanes</b>	<b>0.000</b>	<b>2.14</b>	<b>0.000</b>	<b>0.192</b>

---

**Surrogate Recovery (%)**

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

---



## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523819-001 PS	3523820-001 PS	3523821-001 PS	3523822-001 PS
RCAT ID	2010355-13	2010355-14	2010355-15	2010355-16
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0	0	0	0
Sample Size	1038	1050	1047	1038
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	0.247 J
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.247</b>
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523819-001 PS		3523820-001 PS		3523821-001 PS		3523822-001 PS	
RCAT ID	2010355-13		2010355-14		2010355-15		2010355-16	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1038		1050		1047		1038	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.963	0.016	0.952	0.016	0.955	0.016	0.963
nC-11 Undecane	0.012	0.963	0.012	0.952	0.012	0.955	0.012	0.963
nC-12 Dodecane	0.014	0.963	0.014	0.952	0.014	0.955	0.014	0.963
nC-13 Tridecane	0.011	0.963	0.011	0.952	0.011	0.955	0.011	0.963
nC-14 Tetradecane	0.026	0.963	0.026	0.952	0.026	0.955	0.026	0.963
nC-15 Pentadecane	0.023	0.963	0.023	0.952	0.023	0.955	0.023	0.963
nC-16 Hexadecane	0.022	0.963	0.021	0.952	0.021	0.955	0.022	0.963
nC-17 Heptadecane	0.046	0.963	0.046	0.952	0.046	0.955	0.046	0.963
Pristane	0.045	0.963	0.044	0.952	0.044	0.955	0.045	0.963
nC-18 Octadecane	0.068	0.963	0.067	0.952	0.067	0.955	0.068	0.963
Phytane	0.070	0.963	0.069	0.952	0.069	0.955	0.070	0.963
nC-19 Nonadecane	0.038	0.963	0.038	0.952	0.038	0.955	0.038	0.963
nC-20 Eicosane	0.040	0.963	0.039	0.952	0.040	0.955	0.040	0.963
nC-21 Heneicosane	0.033	0.963	0.033	0.952	0.033	0.955	0.033	0.963
nC-22 Docosane	0.067	0.963	0.066	0.952	0.066	0.955	0.067	0.963
nC-23 Tricosane	0.037	0.963	0.037	0.952	0.037	0.955	0.037	0.963
nC-24 Tetracosane	0.059	0.963	0.059	0.952	0.059	0.955	0.059	0.963
nC-25 Pentacosane	0.188	0.963	0.186	0.952	0.186	0.955	0.188	0.963
nC-26 Hexacosane	0.159	0.963	0.157	0.952	0.157	0.955	0.159	0.963
nC-27 Heptacosane	0.125	0.963	0.124	0.952	0.124	0.955	0.125	0.963
nC-28 Octacosane	0.201	0.963	0.199	0.952	0.199	0.955	0.201	0.963
nC-29 Nonacosane	0.151	0.963	0.150	0.952	0.150	0.955	0.151	0.963
nC-30 Triacontane	0.084	0.963	0.083	0.952	0.083	0.955	0.084	0.963
nC-31 Hentriacontane	0.085	0.963	0.084	0.952	0.084	0.955	0.085	0.963
nC-32 Dotriacontane	0.049	0.963	0.048	0.952	0.048	0.955	0.049	0.963
nC-33 Tritriacontane	0.071	0.963	0.070	0.952	0.071	0.955	0.071	0.963
nC-34 Tetratriacontane	0.070	0.963	0.069	0.952	0.069	0.955	0.070	0.963
nC-35 Pentatriacontane	0.035	0.963	0.034	0.952	0.034	0.955	0.035	0.963

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523819-001 PS		3523820-001 PS		3523821-001 PS		3523822-001 PS	
RCAT ID	2010355-13		2010355-14		2010355-15		2010355-16	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1038		1050		1047		1038	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
C1-Naphthalenes	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
C2-Naphthalenes	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
C3-Naphthalenes	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
C4-Naphthalenes	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
Fluorene	0.491	4.771	0.491	4.771	0.491	4.771	0.491	4.771
C1-Fluorenes	0.491	4.771	0.491	4.771	0.491	4.771	0.491	4.771
C2-Fluorenes	0.491	4.771	0.491	4.771	0.491	4.771	0.491	4.771
C3- Fluorenes	0.491	4.771	0.491	4.771	0.491	4.771	0.491	4.771
Dibenzothiophene	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C1-Dibenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C2-Dibenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C3- Dibenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
Phenanthrene	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
C1-Phenanthrenes	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
C2-Phenanthrenes	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
C3-Phenanthrenes	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
C4-Phenanthrenes	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
Anthracene	0.380	4.771	0.380	4.771	0.380	4.771	0.380	4.771
Fluoranthene	0.651	4.771	0.651	4.771	0.651	4.771	0.651	4.771
Pyrene	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
C1- Pyrenes	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
C2- Pyrenes	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
C3- Pyrenes	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
C4- Pyrenes	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
Naphthobenzothiophene	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C-1 Naphthobenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C-2 Naphthobenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C-3 Naphthobenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
Benzo (a) Anthracene	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
Chrysene	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
C1- Chrysenes	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
C2- Chrysenes	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
C3- Chrysenes	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
C4- Chrysenes	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
Benzo (b) Fluoranthene	0.717	4.771	0.717	4.771	0.717	4.771	0.717	4.771
Benzo (k) Fluoranthene	0.673	4.771	0.673	4.771	0.673	4.771	0.673	4.771
Benzo (e) Pyrene	0.963	4.771	0.963	4.771	0.963	4.771	0.963	4.771
Benzo (a) Pyrene	0.804	4.771	0.804	4.771	0.804	4.771	0.804	4.771
Perylene	0.256	4.771	0.256	4.771	0.256	4.771	0.256	4.771
Indeno (1,2,3 - cd) Pyrene	1.870	4.771	1.870	4.771	1.870	4.771	1.870	4.771
Dibenzo (a,h) anthracene	1.632	4.771	1.632	4.771	1.632	4.771	1.632	4.771
Benzo (g,h,i) perylene	2.105	4.771	2.105	4.771	2.105	4.771	2.105	4.771

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523822-002 PS	3523823-001 PS
RCAT ID	2010355-17	2010355-18
Sample Matrix	Water	Water
Analytical Instrument	Mustang	Mustang
% Moisture	0	0
% Lipid		
Sample Size	1052	1040
Sample Unit-Basis	ml	ml
Units	ug/L	ug/L
nC-10 Decane	U	U
nC-11 Undecane	U	U
nC-12 Dodecane	U	U
nC-13 Tridecane	U	U
nC-14 Tetradecane	U	U
nC-15 Pentadecane	U	U
nC-16 Hexadecane	U	U
nC-17 Heptadecane	U	U
Pristane	U	U
nC-18 Octadecane	U	U
Phytane	U	U
nC-19 Nonadecane	U	U
nC-20 Eicosane	U	U
nC-21 Heneicosane	U	U
nC-22 Docosane	U	U
nC-23 Tricosane	U	U
nC-24 Tetracosane	U	U
nC-25 Pentacosane	U	U
nC-26 Hexacosane	U	U
nC-27 Heptacosane	U	U
nC-28 Octacosane	U	U
nC-29 Nonacosane	U	0.169 J
nC-30 Triacontane	U	U
nC-31 Hentriacontane	U	U
nC-32 Dotriacontane	U	U
nC-33 Tritriacontane	U	U
nC-34 Tetratriacontane	U	U
nC-35 Pentatriacontane	U	U
<b>Total Alkanes</b>	<b>0.000</b>	<b>0.169</b>
<b>Surrogate Recovery (%)</b>		
5 Alpha Androstane	0	0

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523822-002 PS	3523823-001 PS
RCAT ID	2010355-17	2010355-18
Sample Matrix	Water	Water
Analytical Instrument	Mustang	Mustang
% Moisture	0	0
% Lipid	0	0
Sample Size	1052	1040
Sample Unit-Basis	ml	ml
Units	ng/L	ng/L
Naphthalene	U	U
C1-Naphthalenes	U	U
C2-Naphthalenes	U	U
C3-Naphthalenes	U	U
C4-Naphthalenes	U	U
Fluorene	U	U
C1-Fluorenes	U	U
C2-Fluorenes	U	U
C3- Fluorenes	U	U
Dibenzothiophene	U	U
C1-Dibenzothiophenes	U	U
C2-Dibenzothiophenes	U	U
C3- Dibenzothiophenes	U	U
Phenanthrene	U	U
C1-Phenanthrenes	U	U
C2-Phenanthrenes	U	U
C3-Phenanthrenes	U	U
C4-Phenanthrenes	U	U
Anthracene	U	U
Fluoranthene	U	U
Pyrene	U	U
C1- Pyrenes	U	U
C2- Pyrenes	U	U
C3- Pyrenes	U	U
C4- Pyrenes	U	U
Naphthobenzothiophene	U	U
C-1 Naphthobenzothiophenes	U	U
C-2 Naphthobenzothiophenes	U	U
C-3 Naphthobenzothiophenes	U	U
Benzo (a) Anthracene	U	U
Chrysene	U	U
C1- Chrysenes	U	U
C2- Chrysenes	U	U
C3- Chrysenes	U	U
C4- Chrysenes	U	U
Benzo (b) Fluoranthene	U	U
Benzo (k) Fluoranthene	U	U
Benzo (e) Pyrene	U	U
Benzo (a) Pyrene	U	U
Perylene	U	U
Indeno (1,2,3 - cd) Pyrene	U	U
Dibenzo (a,h) anthracene	U	U
Benzo (g,h,i) perylene	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>
<b>% Surrogate Recovery</b>		
Phenanthrene d-10	0	0

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client:

Project Name:

Client ID	3523822-002 PS		3523823-001 PS	
RCAT ID	2010355-17		2010355-18	
Sample Matrix	Water		Water	
Analytical Instrument	Mustang		Mustang	
% Moisture	0		0	
% Lipid	0		0	
Sample Size	1052		1040	
Sample Unit-Basis	ml		ml	
Units	ug/L		ug/L	
	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.951	0.016	0.962
nC-11 Undecane	0.012	0.951	0.012	0.962
nC-12 Dodecane	0.014	0.951	0.014	0.962
nC-13 Tridecane	0.011	0.951	0.011	0.962
nC-14 Tetradecane	0.026	0.951	0.026	0.962
nC-15 Pentadecane	0.023	0.951	0.023	0.962
nC-16 Hexadecane	0.021	0.951	0.022	0.962
nC-17 Heptadecane	0.046	0.951	0.046	0.962
Pristane	0.044	0.951	0.045	0.962
nC-18 Octadecane	0.067	0.951	0.068	0.962
Phytane	0.069	0.951	0.070	0.962
nC-19 Nonadecane	0.037	0.951	0.038	0.962
nC-20 Eicosane	0.039	0.951	0.040	0.962
nC-21 Heneicosane	0.033	0.951	0.033	0.962
nC-22 Docosane	0.066	0.951	0.067	0.962
nC-23 Tricosane	0.037	0.951	0.037	0.962
nC-24 Tetracosane	0.059	0.951	0.059	0.962
nC-25 Pentacosane	0.185	0.951	0.187	0.962
nC-26 Hexacosane	0.157	0.951	0.158	0.962
nC-27 Heptacosane	0.124	0.951	0.125	0.962
nC-28 Octacosane	0.198	0.951	0.200	0.962
nC-29 Nonacosane	0.149	0.951	0.151	0.962
nC-30 Triacontane	0.083	0.951	0.083	0.962
nC-31 Hentriacontane	0.084	0.951	0.085	0.962
nC-32 Dotriacontane	0.048	0.951	0.049	0.962
nC-33 Tritriacontane	0.070	0.951	0.071	0.962
nC-34 Tetratriacontane	0.069	0.951	0.070	0.962
nC-35 Pentatriacontane	0.034	0.951	0.034	0.962

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client:

Project Name:

Client ID 3523822-002 PS 3523823-001 PS

RCAT ID 2010355-17 2010355-18

Sample Matrix Water Water

Analytical Instrument Mustang Mustang

% Moisture 0 0

% Lipid 0 0

Sample Size 1052 1040

Sample Unit-Basis ml ml

Units ng/L ng/L

	MDL	RQL	MDL	RQL
Naphthalene	0.213	4.753	0.213	4.753
C1-Naphthalenes	0.213	4.753	0.213	4.753
C2-Naphthalenes	0.213	4.753	0.213	4.753
C3-Naphthalenes	0.213	4.753	0.213	4.753
C4-Naphthalenes	0.213	4.753	0.213	4.753
Fluorene	0.489	4.753	0.489	4.753
C1-Fluorenes	0.489	4.753	0.489	4.753
C2-Fluorenes	0.489	4.753	0.489	4.753
C3- Fluorenes	0.489	4.753	0.489	4.753
Dibenzothiophene	0.626	4.753	0.626	4.753
C1-Dibenzothiophenes	0.626	4.753	0.626	4.753
C2-Dibenzothiophenes	0.626	4.753	0.626	4.753
C3- Dibenzothiophenes	0.626	4.753	0.626	4.753
Phenanthrene	0.364	4.753	0.364	4.753
C1-Phenanthrenes	0.364	4.753	0.364	4.753
C2-Phenanthrenes	0.364	4.753	0.364	4.753
C3-Phenanthrenes	0.364	4.753	0.364	4.753
C4-Phenanthrenes	0.364	4.753	0.364	4.753
Anthracene	0.378	4.753	0.378	4.753
Fluoranthene	0.649	4.753	0.649	4.753
Pyrene	0.769	4.753	0.769	4.753
C1- Pyrenes	0.769	4.753	0.769	4.753
C2- Pyrenes	0.769	4.753	0.769	4.753
C3- Pyrenes	0.769	4.753	0.769	4.753
C4- Pyrenes	0.769	4.753	0.769	4.753
Naphthobenzothiophene	0.626	4.753	0.626	4.753
C-1 Naphthobenzothiophenes	0.626	4.753	0.626	4.753
C-2 Naphthobenzothiophenes	0.626	4.753	0.626	4.753
C-3 Naphthobenzothiophenes	0.626	4.753	0.626	4.753
Benzo (a) Anthracene	1.044	4.753	1.044	4.753
Chrysene	1.044	4.753	1.044	4.753
C1- Chrysenes	1.044	4.753	1.044	4.753
C2- Chrysenes	1.044	4.753	1.044	4.753
C3- Chrysenes	1.044	4.753	1.044	4.753
C4- Chrysenes	1.044	4.753	1.044	4.753
Benzo (b) Fluoranthene	0.714	4.753	0.714	4.753
Benzo (k) Fluoranthene	0.671	4.753	0.671	4.753
Benzo (e) Pyrene	0.959	4.753	0.959	4.753
Benzo (a) Pyrene	0.801	4.753	0.801	4.753
Perylene	0.255	4.753	0.255	4.753
Indeno (1,2,3 - cd) Pyrene	1.863	4.753	1.863	4.753
Dibenzo (a,h) anthracene	1.626	4.753	1.626	4.753
Benzo (g,h,i) perylene	2.097	4.753	2.097	4.753

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523824-001 PS	3523825-001 PS	3523826-001 PS	3523827-001 PS
RCAT ID	2010355-19	2010355-20	2010355-21	2010355-22
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1046	1050	1049	943
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	0.023 J	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	0.030 J	U	U
nC-16 Hexadecane	0.037 J	0.032 J	0.028 J	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	0.056 J	U	U
nC-24 Tetracosane	U	0.109 J	U	U
nC-25 Pentacosane	U	0.334 J	U	U
nC-26 Hexacosane	U	0.302 J	U	U
nC-27 Heptacosane	U	0.263 J	U	U
nC-28 Octacosane	U	0.365 J	U	U
nC-29 Nonacosane	U	0.351 J	U	U
nC-30 Triacontane	U	0.107 J	U	U
nC-31 Hentriacontane	U	0.505 J	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	0.154 J	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.059</b>	<b>2.61</b>	<b>0.028</b>	<b>0.000</b>
<b>Surrogate Recovery (%)</b>				
5 Alpha Androstane	0	0	0	0



## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523824-001 PS	3523825-001 PS	3523826-001 PS	3523827-001 PS
RCAT ID	2010355-19	2010355-20	2010355-21	2010355-22
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0.000	0	0	0
Sample Size	1046	1050	1049	943
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	3.64 J	U	U
C1-Phenanthrenes	U	19.4	U	U
C2-Phenanthrenes	U	22.4	U	U
C3-Phenanthrenes	U	24.8	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	4.19 J	U	U
Fluoranthene	U	3.42 J	U	U
Pyrene	U	4.85	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	12.6	U	U
C3- Pyrenes	U	33.9	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	28.0	U	U
C-2 Naphthobenzothiophenes	U	22.6	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	31.9	U	U
Chrysene	U	17.8	U	U
C1- Chrysenes	U	138	U	U
C2- Chrysenes	U	188	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	37.2	U	U
Benzo (a) Pyrene	U	22.6	U	U
Perylene	0.413 J	19.3	U	0.423 J
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.413</b>	<b>635</b>	<b>0.000</b>	<b>1.60</b>

**% Surrogate Recovery**

Phenanthrene d-10	0	0	0	0
-------------------	---	---	---	---

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523824-001 PS		3523825-001 PS		3523826-001 PS		3523827-001 PS	
RCAT ID	2010355-19		2010355-20		2010355-21		2010355-22	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1046		1050		1049		943	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.956	0.016	0.952	0.016	0.953	0.018	1.060
nC-11 Undecane	0.012	0.954	0.012	0.952	0.012	0.953	0.014	1.060
nC-12 Dodecane	0.014	0.954	0.014	0.952	0.014	0.953	0.016	1.060
nC-13 Tridecane	0.011	0.954	0.011	0.952	0.011	0.953	0.012	1.060
nC-14 Tetradecane	0.026	0.954	0.026	0.952	0.026	0.953	0.029	1.060
nC-15 Pentadecane	0.023	0.954	0.023	0.952	0.023	0.953	0.025	1.060
nC-16 Hexadecane	0.021	0.954	0.021	0.952	0.021	0.953	0.024	1.060
nC-17 Heptadecane	0.046	0.954	0.046	0.952	0.046	0.953	0.051	1.060
Pristane	0.044	0.954	0.044	0.952	0.044	0.953	0.049	1.060
nC-18 Octadecane	0.067	0.954	0.067	0.952	0.067	0.953	0.075	1.060
Phytane	0.069	0.954	0.069	0.952	0.069	0.953	0.077	1.060
nC-19 Nonadecane	0.038	0.954	0.038	0.952	0.038	0.953	0.042	1.060
nC-20 Eicosane	0.040	0.954	0.039	0.952	0.040	0.953	0.044	1.060
nC-21 Heneicosane	0.033	0.954	0.033	0.952	0.033	0.953	0.036	1.060
nC-22 Docosane	0.066	0.954	0.066	0.952	0.066	0.953	0.074	1.060
nC-23 Tricosane	0.037	0.954	0.037	0.952	0.037	0.953	0.041	1.060
nC-24 Tetracosane	0.059	0.954	0.059	0.952	0.059	0.953	0.065	1.060
nC-25 Pentacosane	0.186	0.954	0.186	0.952	0.186	0.953	0.207	1.060
nC-26 Hexacosane	0.157	0.954	0.157	0.952	0.157	0.953	0.175	1.060
nC-27 Heptacosane	0.124	0.954	0.124	0.952	0.124	0.953	0.138	1.060
nC-28 Octacosane	0.199	0.954	0.199	0.952	0.199	0.953	0.221	1.060
nC-29 Nonacosane	0.150	0.954	0.150	0.952	0.150	0.953	0.166	1.060
nC-30 Triacontane	0.083	0.954	0.083	0.952	0.083	0.953	0.092	1.060
nC-31 Hentriacontane	0.084	0.954	0.084	0.952	0.084	0.953	0.094	1.060
nC-32 Dotriacontane	0.048	0.954	0.048	0.952	0.048	0.953	0.054	1.060
nC-33 Tritriacontane	0.071	0.954	0.070	0.952	0.070	0.953	0.078	1.060
nC-34 Tetratriacontane	0.069	0.954	0.069	0.952	0.069	0.953	0.077	1.060
nC-35 Pentatriacontane	0.034	0.954	0.034	0.952	0.034	0.953	0.038	1.060

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523824-001 PS		3523825-001 PS		3523826-001 PS		3523827-001 PS	
RCAT ID	2010355-19		2010355-20		2010355-21		2010355-22	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1046		1050		1049		943	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.215	4.780	0.214	4.762	0.214	4.762	0.214	4.762
C1-Naphthalenes	0.215	4.780	0.214	4.762	0.214	4.762	0.214	4.762
C2-Naphthalenes	0.215	4.780	0.214	4.762	0.214	4.762	0.214	4.762
C3-Naphthalenes	0.215	4.780	0.214	4.762	0.214	4.762	0.214	4.762
C4-Naphthalenes	0.215	4.780	0.214	4.762	0.214	4.762	0.214	4.762
Fluorene	0.492	4.780	0.490	4.762	0.490	4.762	0.490	4.762
C1-Fluorenes	0.492	4.780	0.490	4.762	0.490	4.762	0.490	4.762
C2-Fluorenes	0.492	4.780	0.490	4.762	0.490	4.762	0.490	4.762
C3- Fluorenes	0.492	4.780	0.490	4.762	0.490	4.762	0.490	4.762
Dibenzothiophene	0.630	4.780	0.627	4.762	0.627	4.762	0.627	4.762
C1-Dibenzothiophenes	0.630	4.780	0.627	4.762	0.627	4.762	0.627	4.762
C2-Dibenzothiophenes	0.630	4.780	0.627	4.762	0.627	4.762	0.627	4.762
C3- Dibenzothiophenes	0.630	4.780	0.627	4.762	0.627	4.762	0.627	4.762
Phenanthrene	0.366	4.780	0.365	4.762	0.365	4.762	0.365	4.762
C1-Phenanthrenes	0.366	4.780	0.365	4.762	0.365	4.762	0.365	4.762
C2-Phenanthrenes	0.366	4.780	0.365	4.762	0.365	4.762	0.365	4.762
C3-Phenanthrenes	0.366	4.780	0.365	4.762	0.365	4.762	0.365	4.762
C4-Phenanthrenes	0.366	4.780	0.365	4.762	0.365	4.762	0.365	4.762
Anthracene	0.381	4.780	0.379	4.762	0.379	4.762	0.379	4.762
Fluoranthene	0.653	4.780	0.650	4.762	0.650	4.762	0.650	4.762
Pyrene	0.774	4.780	0.771	4.762	0.771	4.762	0.771	4.762
C1- Pyrenes	0.774	4.780	0.771	4.762	0.771	4.762	0.771	4.762
C2- Pyrenes	0.774	4.780	0.771	4.762	0.771	4.762	0.771	4.762
C3- Pyrenes	0.774	4.780	0.771	4.762	0.771	4.762	0.771	4.762
C4- Pyrenes	0.774	4.780	0.771	4.762	0.771	4.762	0.771	4.762
Naphthobenzothiophene	0.630	4.780	0.627	4.762	0.627	4.762	0.627	4.762
C-1 Naphthobenzothiophenes	0.630	4.780	0.627	4.762	0.627	4.762	0.627	4.762
C-2 Naphthobenzothiophenes	0.630	4.780	0.627	4.762	0.627	4.762	0.627	4.762
C-3 Naphthobenzothiophenes	0.630	4.780	0.627	4.762	0.627	4.762	0.627	4.762
Benzo (a) Anthracene	1.050	4.780	1.046	4.762	1.046	4.762	1.046	4.762
Chrysene	1.050	4.780	1.046	4.762	1.046	4.762	1.046	4.762
C1- Chrysenes	1.050	4.780	1.046	4.762	1.046	4.762	1.046	4.762
C2- Chrysenes	1.050	4.780	1.046	4.762	1.046	4.762	1.046	4.762
C3- Chrysenes	1.050	4.780	1.046	4.762	1.046	4.762	1.046	4.762
C4- Chrysenes	1.050	4.780	1.046	4.762	1.046	4.762	1.046	4.762
Benzo (b) Fluoranthene	0.718	4.780	0.715	4.762	0.715	4.762	0.715	4.762
Benzo (k) Fluoranthene	0.675	4.780	0.672	4.762	0.672	4.762	0.672	4.762
Benzo (e) Pyrene	0.965	4.780	0.961	4.762	0.961	4.762	0.961	4.762
Benzo (a) Pyrene	0.806	4.780	0.803	4.762	0.803	4.762	0.803	4.762
Perylene	0.256	4.780	0.255	4.762	0.255	4.762	0.255	4.762
Indeno (1,2,3 - cd) Pyrene	1.874	4.780	1.866	4.762	1.866	4.762	1.866	4.762
Dibenzo (a,h) anthracene	1.635	4.780	1.629	4.762	1.629	4.762	1.629	4.762
Benzo (g,h,i) perylene	2.109	4.780	2.101	4.762	2.101	4.762	2.101	4.762

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523828-001 PS	152909 BLANK	152910 LCS	152911 LCSD
RCAT ID	2010355-23	2010355-24	2010355-25	2010355-26
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1048	1000	1000	1000
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	0.026 J	0.024 J
nC-16 Hexadecane	0.036 J	U	0.034 J	0.030 J
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.036</b>	<b>0.000</b>	<b>0.060</b>	<b>0.054</b>
<b>Surrogate Recovery (%)</b>				
5 Alpha Androstane	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523828-001 PS	152909 BLANK	152910 LCS	152911 LCSD
RCAT ID	2010355-23	2010355-24	2010355-25	2010355-26
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0	0	0	0
Sample Size	1048	1000	1000	1000
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	✓ 0.384	✓ 0.391	3400	3420
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	3920	3890
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	3570	3600
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	4070	4190
Fluoranthene	U	U	3690	3540
Pyrene	U	U	3650	3570
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	3570	3530
Chrysene	U	U	4230	4220
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	3680	3490
Benzo (k) Fluoranthene	U	U	4290	4310
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	3400	3390
Perylene	0.455 J	0.295 J	0.334 J	U
Indeno (1,2,3 - cd) Pyrene	U	U	2050	1880
Dibenzo (a,h) anthracene	U	U	2540	2430
Benzo (g,h,i) perylene	U	U	1790	1700
<b>Total Aromatics</b>	<b>0.839</b>	<b>0.000</b> 0.686	<b>47900</b>	<b>47200</b>

## % Surrogate Recovery

Phenanthrene d-10	0	0	0	0
-------------------	---	---	---	---

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523828-001 PS		152909 BLANK		152910 LCS		152911 LCSD	
RCAT ID	2010355-23		2010355-24		2010355-25		2010355-26	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1048		1000		1000		1000	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.954	0.017	1.000	0.017	1.000	0.017	1.000
nC-11 Undecane	0.012	0.954	0.013	1.000	0.013	1.000	0.013	1.000
nC-12 Dodecane	0.014	0.954	0.015	1.000	0.015	1.000	0.015	1.000
nC-13 Tridecane	0.011	0.954	0.011	1.000	0.011	1.000	0.011	1.000
nC-14 Tetradecane	0.026	0.954	0.027	1.000	0.027	1.000	0.027	1.000
nC-15 Pentadecane	0.023	0.954	0.024	1.000	0.024	1.000	0.024	1.000
nC-16 Hexadecane	0.021	0.954	0.022	1.000	0.022	1.000	0.022	1.000
nC-17 Heptadecane	0.046	0.954	0.048	1.000	0.048	1.000	0.048	1.000
Pristane	0.044	0.954	0.046	1.000	0.046	1.000	0.046	1.000
nC-18 Octadecane	0.067	0.954	0.070	1.000	0.070	1.000	0.070	1.000
Phytane	0.069	0.954	0.073	1.000	0.073	1.000	0.073	1.000
nC-19 Nonadecane	0.038	0.954	0.039	1.000	0.039	1.000	0.039	1.000
nC-20 Eicosane	0.040	0.954	0.041	1.000	0.041	1.000	0.041	1.000
nC-21 Heneicosane	0.033	0.954	0.034	1.000	0.034	1.000	0.034	1.000
nC-22 Docosane	0.066	0.954	0.070	1.000	0.070	1.000	0.070	1.000
nC-23 Tricosane	0.037	0.954	0.039	1.000	0.039	1.000	0.039	1.000
nC-24 Tetracosane	0.059	0.954	0.062	1.000	0.062	1.000	0.062	1.000
nC-25 Pentacosane	0.186	0.954	0.195	1.000	0.195	1.000	0.195	1.000
nC-26 Hexacosane	0.157	0.954	0.165	1.000	0.165	1.000	0.165	1.000
nC-27 Heptacosane	0.124	0.954	0.130	1.000	0.130	1.000	0.130	1.000
nC-28 Octacosane	0.199	0.954	0.208	1.000	0.208	1.000	0.208	1.000
nC-29 Nonacosane	0.150	0.954	0.157	1.000	0.157	1.000	0.157	1.000
nC-30 Triacontane	0.083	0.954	0.087	1.000	0.087	1.000	0.087	1.000
nC-31 Hentriacontane	0.084	0.954	0.088	1.000	0.088	1.000	0.088	1.000
nC-32 Dotriacontane	0.048	0.954	0.051	1.000	0.051	1.000	0.051	1.000
nC-33 Tritriacontane	0.071	0.954	0.074	1.000	0.074	1.000	0.074	1.000
nC-34 Tetratriacontane	0.069	0.954	0.073	1.000	0.073	1.000	0.073	1.000
nC-35 Pentatriacontane	0.034	0.954	0.036	1.000	0.036	1.000	0.036	1.000

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523828-001 PS		152909 BLANK		152910 LCS		152911 LCSD	
RCAT ID	2010355-23		2010355-24		2010355-25		2010355-26	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1048		1000		1000		1000	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
C1-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
C2-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
C3-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
C4-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
Fluorene	0.490	4.762	0.490	4.762	0.490	4.762	0.490	4.762
C1-Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762	0.490	4.762
C2-Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762	0.490	4.762
C3- Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762	0.490	4.762
Dibenzothiophene	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C1-Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C2-Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C3- Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
Phenanthrene	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
C1-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
C2-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
C3-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
C4-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
Anthracene	0.379	4.762	0.379	4.762	0.379	4.762	0.379	4.762
Fluoranthene	0.650	4.762	0.650	4.762	0.650	4.762	0.650	4.762
Pyrene	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
C1- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
C2- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
C3- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
C4- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
Naphthobenzothiophene	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C-1 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C-2 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C-3 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
Benzo (a) Anthracene	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
Chrysene	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
C1- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
C2- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
C3- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
C4- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
Benzo (b) Fluoranthene	0.715	4.762	0.715	4.762	0.715	4.762	0.715	4.762
Benzo (k) Fluoranthene	0.672	4.762	0.672	4.762	0.672	4.762	0.672	4.762
Benzo (e) Pyrene	0.961	4.762	0.961	4.762	0.961	4.762	0.961	4.762
Benzo (a) Pyrene	0.803	4.762	0.803	4.762	0.803	4.762	0.803	4.762
Perylene	0.255	4.762	0.255	4.762	0.255	4.762	0.255	4.762
Indeno (1,2,3 - cd) Pyrene	1.866	4.762	1.866	4.762	1.866	4.762	1.866	4.762
Dibenzo (a,h) anthracene	1.629	4.762	1.629	4.762	1.629	4.762	1.629	4.762
Benzo (g,h,i) perylene	2.101	4.762	2.101	4.762	2.101	4.762	2.101	4.762

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523829-001 PS	3523829-002 PS	3523830-001 PS	3523831-001 PS
RCAT ID	2010355-27	2010355-28	2010355-29	2010355-30
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1045	1046	1044	1032
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	0.034 J	0.024 J	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	0.110 J
nC-24 Tetracosane	U	0.115 J	U	0.175 J
nC-25 Pentacosane	U	U	U	0.688 J
nC-26 Hexacosane	U	U	U	0.424 J
nC-27 Heptacosane	U	U	U	0.789 J
nC-28 Octacosane	U	U	U	0.428 J
nC-29 Nonacosane	U	U	U	0.978
nC-30 Triacontane	U	U	U	0.538 J
nC-31 Hentriacontane	U	U	U	1.17
nC-32 Dotriacontane	U	U	U	0.310 J
nC-33 Trtriacontane	U	U	U	0.280 J
nC-34 Tetratriacontane	U	U	U	0.076 J
nC-35 Pentatriacontane	U	U	U	0.067 J
<b>Total Alkanes</b>	<b>0.000</b>	<b>0.149</b>	<b>0.024</b>	<b>6.04</b>

---

Surrogate Recovery (%)

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

---



## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523829-001 PS	3523829-002 PS	3523830-001 PS	3523831-001 PS
RCAT ID	2010355-27	2010355-28	2010355-29	2010355-30
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0.000	0	0	0
Sample Size	1045	1046	1044	1032
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523829-001 PS		3523829-002 PS		3523830-001 PS		3523831-001 PS	
RCAT ID	2010355-27		2010355-28		2010355-29		2010355-30	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1045		1046		1044		1032	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.957	0.016	0.956	0.016	0.958	0.016	0.969
nC-11 Undecane	0.012	0.952	0.012	0.956	0.012	0.958	0.012	0.969
nC-12 Dodecane	0.014	0.952	0.014	0.956	0.014	0.958	0.014	0.969
nC-13 Tridecane	0.011	0.952	0.011	0.956	0.011	0.958	0.011	0.969
nC-14 Tetradecane	0.026	0.952	0.026	0.956	0.026	0.958	0.026	0.969
nC-15 Pentadecane	0.023	0.952	0.023	0.956	0.023	0.958	0.023	0.969
nC-16 Hexadecane	0.021	0.952	0.021	0.956	0.021	0.958	0.022	0.969
nC-17 Heptadecane	0.046	0.952	0.046	0.956	0.046	0.958	0.046	0.969
Pristane	0.044	0.952	0.044	0.956	0.044	0.958	0.045	0.969
nC-18 Octadecane	0.067	0.952	0.067	0.956	0.067	0.958	0.068	0.969
Phytane	0.069	0.952	0.069	0.956	0.070	0.958	0.070	0.969
nC-19 Nonadecane	0.038	0.952	0.038	0.956	0.038	0.958	0.038	0.969
nC-20 Eicosane	0.039	0.952	0.040	0.956	0.040	0.958	0.040	0.969
nC-21 Heneicosane	0.033	0.952	0.033	0.956	0.033	0.958	0.033	0.969
nC-22 Docosane	0.066	0.952	0.066	0.956	0.067	0.958	0.067	0.969
nC-23 Tricosane	0.037	0.952	0.037	0.956	0.037	0.958	0.038	0.969
nC-24 Tetracosane	0.059	0.952	0.059	0.956	0.059	0.958	0.060	0.969
nC-25 Pentacosane	0.186	0.952	0.186	0.956	0.187	0.958	0.189	0.969
nC-26 Hexacosane	0.157	0.952	0.158	0.956	0.158	0.958	0.160	0.969
nC-27 Heptacosane	0.124	0.952	0.125	0.956	0.125	0.958	0.126	0.969
nC-28 Octacosane	0.199	0.952	0.199	0.956	0.200	0.958	0.202	0.969
nC-29 Nonacosane	0.150	0.952	0.150	0.956	0.150	0.958	0.152	0.969
nC-30 Triacontane	0.083	0.952	0.083	0.956	0.083	0.958	0.084	0.969
nC-31 Hentriacontane	0.084	0.952	0.084	0.956	0.085	0.958	0.085	0.969
nC-32 Dotriacontane	0.048	0.952	0.048	0.956	0.048	0.958	0.049	0.969
nC-33 Tritriacontane	0.070	0.952	0.071	0.956	0.071	0.958	0.072	0.969
nC-34 Tetratriacontane	0.069	0.952	0.069	0.956	0.069	0.958	0.070	0.969
nC-35 Pentatriacontane	0.034	0.952	0.034	0.956	0.034	0.958	0.035	0.969

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523829-001 PS		3523829-002 PS		3523830-001 PS		3523831-001 PS	
RCAT ID	2010355-27		2010355-28		2010355-29		2010355-30	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1045		1046		1044		1032	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.215	4.785	0.215	4.780	0.215	4.780	0.215	4.780
C1-Naphthalenes	0.215	4.785	0.215	4.780	0.215	4.780	0.215	4.780
C2-Naphthalenes	0.215	4.785	0.215	4.780	0.215	4.780	0.215	4.780
C3-Naphthalenes	0.215	4.785	0.215	4.780	0.215	4.780	0.215	4.780
C4-Naphthalenes	0.215	4.785	0.215	4.780	0.215	4.780	0.215	4.780
Fluorene	0.492	4.785	0.492	4.780	0.492	4.780	0.492	4.780
C1-Fluorenes	0.492	4.785	0.492	4.780	0.492	4.780	0.492	4.780
C2-Fluorenes	0.492	4.785	0.492	4.780	0.492	4.780	0.492	4.780
C3- Fluorenes	0.492	4.785	0.492	4.780	0.492	4.780	0.492	4.780
Dibenzothiophene	0.630	4.785	0.630	4.780	0.630	4.780	0.630	4.780
C1-Dibenzothiophenes	0.630	4.785	0.630	4.780	0.630	4.780	0.630	4.780
C2-Dibenzothiophenes	0.630	4.785	0.630	4.780	0.630	4.780	0.630	4.780
C3- Dibenzothiophenes	0.630	4.785	0.630	4.780	0.630	4.780	0.630	4.780
Phenanthrene	0.366	4.785	0.366	4.780	0.366	4.780	0.366	4.780
C1-Phenanthrenes	0.366	4.785	0.366	4.780	0.366	4.780	0.366	4.780
C2-Phenanthrenes	0.366	4.785	0.366	4.780	0.366	4.780	0.366	4.780
C3-Phenanthrenes	0.366	4.785	0.366	4.780	0.366	4.780	0.366	4.780
C4-Phenanthrenes	0.366	4.785	0.366	4.780	0.366	4.780	0.366	4.780
Anthracene	0.381	4.785	0.381	4.780	0.381	4.780	0.381	4.780
Fluoranthene	0.653	4.785	0.653	4.780	0.653	4.780	0.653	4.780
Pyrene	0.774	4.785	0.774	4.780	0.774	4.780	0.774	4.780
C1- Pyrenes	0.774	4.785	0.774	4.780	0.774	4.780	0.774	4.780
C2- Pyrenes	0.774	4.785	0.774	4.780	0.774	4.780	0.774	4.780
C3- Pyrenes	0.774	4.785	0.774	4.780	0.774	4.780	0.774	4.780
C4- Pyrenes	0.774	4.785	0.774	4.780	0.774	4.780	0.774	4.780
Naphthobenzothiophene	0.630	4.785	0.630	4.780	0.630	4.780	0.630	4.780
C-1 Naphthobenzothiophenes	0.630	4.785	0.630	4.780	0.630	4.780	0.630	4.780
C-2 Naphthobenzothiophenes	0.630	4.785	0.630	4.780	0.630	4.780	0.630	4.780
C-3 Naphthobenzothiophenes	0.630	4.785	0.630	4.780	0.630	4.780	0.630	4.780
Benzo (a) Anthracene	1.051	4.785	1.050	4.780	1.050	4.780	1.050	4.780
Chrysene	1.051	4.785	1.050	4.780	1.050	4.780	1.050	4.780
C1- Chrysenes	1.051	4.785	1.050	4.780	1.050	4.780	1.050	4.780
C2- Chrysenes	1.051	4.785	1.050	4.780	1.050	4.780	1.050	4.780
C3- Chrysenes	1.051	4.785	1.050	4.780	1.050	4.780	1.050	4.780
C4- Chrysenes	1.051	4.785	1.050	4.780	1.050	4.780	1.050	4.780
Benzo (b) Fluoranthene	0.719	4.785	0.718	4.780	0.718	4.780	0.718	4.780
Benzo (k) Fluoranthene	0.675	4.785	0.675	4.780	0.675	4.780	0.675	4.780
Benzo (e) Pyrene	0.966	4.785	0.965	4.780	0.965	4.780	0.965	4.780
Benzo (a) Pyrene	0.807	4.785	0.806	4.780	0.806	4.780	0.806	4.780
Perylene	0.257	4.785	0.256	4.780	0.256	4.780	0.256	4.780
Indeno (1,2,3 - cd) Pyrene	1.875	4.785	1.874	4.780	1.874	4.780	1.874	4.780
Dibenzo (a,h) anthracene	1.637	4.785	1.635	4.780	1.635	4.780	1.635	4.780
Benzo (g,h,i) perylene	2.111	4.785	2.109	4.780	2.109	4.780	2.109	4.780

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523832-001 PS	3523833-001 PS	3523834-001 PS	3523835-001 PS
RCAT ID	2010355-31	2010355-32	2010355-33	2010355-34
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1050	1041	1050	913
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	U	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	0.139 J	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.139</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

---

**Surrogate Recovery (%)**

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

---

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523832-001 PS	3523833-001 PS	3523834-001 PS	3523835-001 PS
RCAT ID	2010355-31	2010355-32	2010355-33	2010355-34
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0	0	0	0
Sample Size	1050	1041	1050	913
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	3.54	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523832-001 PS		3523833-001 PS		3523834-001 PS		3523835-001 PS	
RCAT ID	2010355-31		2010355-32		2010355-33		2010355-34	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1041		1050		913	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.952	0.016	0.961	0.016	0.952	0.019	1.095
nC-11 Undecane	0.012	0.952	0.012	0.961	0.012	0.952	0.014	1.095
nC-12 Dodecane	0.014	0.952	0.014	0.961	0.014	0.952	0.016	1.095
nC-13 Tridecane	0.011	0.952	0.011	0.961	0.011	0.952	0.012	1.095
nC-14 Tetradecane	0.026	0.952	0.026	0.961	0.026	0.952	0.030	1.095
nC-15 Pentadecane	0.023	0.952	0.023	0.961	0.023	0.952	0.026	1.095
nC-16 Hexadecane	0.021	0.952	0.022	0.961	0.021	0.952	0.025	1.095
nC-17 Heptadecane	0.046	0.952	0.046	0.961	0.046	0.952	0.053	1.095
Pristane	0.044	0.952	0.045	0.961	0.044	0.952	0.051	1.095
nC-18 Octadecane	0.067	0.952	0.068	0.961	0.067	0.952	0.077	1.095
Phytane	0.069	0.952	0.070	0.961	0.069	0.952	0.079	1.095
nC-19 Nonadecane	0.038	0.952	0.038	0.961	0.038	0.952	0.043	1.095
nC-20 Eicosane	0.039	0.952	0.040	0.961	0.039	0.952	0.045	1.095
nC-21 Heneicosane	0.033	0.952	0.033	0.961	0.033	0.952	0.038	1.095
nC-22 Docosane	0.066	0.952	0.067	0.961	0.066	0.952	0.076	1.095
nC-23 Tricosane	0.037	0.952	0.037	0.961	0.037	0.952	0.043	1.095
nC-24 Tetracosane	0.059	0.952	0.059	0.961	0.059	0.952	0.067	1.095
nC-25 Pentacosane	0.186	0.952	0.187	0.961	0.186	0.952	0.213	1.095
nC-26 Hexacosane	0.157	0.952	0.158	0.961	0.157	0.952	0.181	1.095
nC-27 Heptacosane	0.124	0.952	0.125	0.961	0.124	0.952	0.143	1.095
nC-28 Octacosane	0.199	0.952	0.200	0.961	0.199	0.952	0.228	1.095
nC-29 Nonacosane	0.150	0.952	0.151	0.961	0.150	0.952	0.172	1.095
nC-30 Triacontane	0.083	0.952	0.083	0.961	0.083	0.952	0.095	1.095
nC-31 Hentriacontane	0.084	0.952	0.085	0.961	0.084	0.952	0.097	1.095
nC-32 Dotriacontane	0.048	0.952	0.049	0.961	0.048	0.952	0.055	1.095
nC-33 Tritriacontane	0.070	0.952	0.071	0.961	0.070	0.952	0.081	1.095
nC-34 Tetratriacontane	0.069	0.952	0.070	0.961	0.069	0.952	0.079	1.095
nC-35 Pentatriacontane	0.034	0.952	0.034	0.961	0.034	0.952	0.039	1.095

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523832-001 PS		3523833-001 PS		3523834-001 PS		3523835-001 PS	
RCAT ID	2010355-31		2010355-32		2010355-33		2010355-34	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1041		1050		913	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.215	4.780	0.215	4.780	0.215	4.780	0.215	4.780
C1-Naphthalenes	0.215	4.780	0.215	4.780	0.215	4.780	0.215	4.780
C2-Naphthalenes	0.215	4.780	0.215	4.780	0.215	4.780	0.215	4.780
C3-Naphthalenes	0.215	4.780	0.215	4.780	0.215	4.780	0.215	4.780
C4-Naphthalenes	0.215	4.780	0.215	4.780	0.215	4.780	0.215	4.780
Fluorene	0.492	4.780	0.492	4.780	0.492	4.780	0.492	4.780
C1-Fluorenes	0.492	4.780	0.492	4.780	0.492	4.780	0.492	4.780
C2-Fluorenes	0.492	4.780	0.492	4.780	0.492	4.780	0.492	4.780
C3- Fluorenes	0.492	4.780	0.492	4.780	0.492	4.780	0.492	4.780
Dibenzothiophene	0.630	4.780	0.630	4.780	0.630	4.780	0.630	4.780
C1-Dibenzothiophenes	0.630	4.780	0.630	4.780	0.630	4.780	0.630	4.780
C2-Dibenzothiophenes	0.630	4.780	0.630	4.780	0.630	4.780	0.630	4.780
C3- Dibenzothiophenes	0.630	4.780	0.630	4.780	0.630	4.780	0.630	4.780
Phenanthrene	0.366	4.780	0.366	4.780	0.366	4.780	0.366	4.780
C1-Phenanthrenes	0.366	4.780	0.366	4.780	0.366	4.780	0.366	4.780
C2-Phenanthrenes	0.366	4.780	0.366	4.780	0.366	4.780	0.366	4.780
C3-Phenanthrenes	0.366	4.780	0.366	4.780	0.366	4.780	0.366	4.780
C4-Phenanthrenes	0.366	4.780	0.366	4.780	0.366	4.780	0.366	4.780
Anthracene	0.381	4.780	0.381	4.780	0.381	4.780	0.381	4.780
Fluoranthene	0.653	4.780	0.653	4.780	0.653	4.780	0.653	4.780
Pyrene	0.774	4.780	0.774	4.780	0.774	4.780	0.774	4.780
C1- Pyrenes	0.774	4.780	0.774	4.780	0.774	4.780	0.774	4.780
C2- Pyrenes	0.774	4.780	0.774	4.780	0.774	4.780	0.774	4.780
C3- Pyrenes	0.774	4.780	0.774	4.780	0.774	4.780	0.774	4.780
C4- Pyrenes	0.774	4.780	0.774	4.780	0.774	4.780	0.774	4.780
Naphthobenzothiophene	0.630	4.780	0.630	4.780	0.630	4.780	0.630	4.780
C-1 Naphthobenzothiophenes	0.630	4.780	0.630	4.780	0.630	4.780	0.630	4.780
C-2 Naphthobenzothiophenes	0.630	4.780	0.630	4.780	0.630	4.780	0.630	4.780
C-3 Naphthobenzothiophenes	0.630	4.780	0.630	4.780	0.630	4.780	0.630	4.780
Benzo (a) Anthracene	1.050	4.780	1.050	4.780	1.050	4.780	1.050	4.780
Chrysene	1.050	4.780	1.050	4.780	1.050	4.780	1.050	4.780
C1- Chrysenes	1.050	4.780	1.050	4.780	1.050	4.780	1.050	4.780
C2- Chrysenes	1.050	4.780	1.050	4.780	1.050	4.780	1.050	4.780
C3- Chrysenes	1.050	4.780	1.050	4.780	1.050	4.780	1.050	4.780
C4- Chrysenes	1.050	4.780	1.050	4.780	1.050	4.780	1.050	4.780
Benzo (b) Fluoranthene	0.718	4.780	0.718	4.780	0.718	4.780	0.718	4.780
Benzo (k) Fluoranthene	0.675	4.780	0.675	4.780	0.675	4.780	0.675	4.780
Benzo (e) Pyrene	0.965	4.780	0.965	4.780	0.965	4.780	0.965	4.780
Benzo (a) Pyrene	0.806	4.780	0.806	4.780	0.806	4.780	0.806	4.780
Perylene	0.256	4.780	0.256	4.780	0.256	4.780	0.256	4.780
Indeno (1,2,3 - cd) Pyrene	1.874	4.780	1.874	4.780	1.874	4.780	1.874	4.780
Dibenzo (a,h) anthracene	1.635	4.780	1.635	4.780	1.635	4.780	1.635	4.780
Benzo (g,h,i) perylene	2.109	4.780	2.109	4.780	2.109	4.780	2.109	4.780

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523836-001 PS	3523837-001 PS	0.000	3523838-001 PS
RCAT ID	2010355-35	2010355-36	Method BLK	2010355-37
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1014	994	1000	1041
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	U	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

---

**Surrogate Recovery (%)**

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

---



## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523836-001 PS	3523837-001 PS	0	3523838-001 PS
RCAT ID	2010355-35	2010355-36	Method BLK	2010355-37
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0.000	0	0	0
Sample Size	1014	994	1000	1041
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	0.307 U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.307</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523836-001 PS		3523837-001 PS		0.000		3523838-001 PS	
RCAT ID	2010355-35		2010355-36		Method BLK		2010355-37	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1014		994		1000		1041	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.017	0.986	0.017	1.006	0.017	1.000	0.016	0.961
nC-11 Undecane	0.012	0.952	0.013	1.006	0.013	1.000	0.012	0.961
nC-12 Dodecane	0.014	0.952	0.015	1.006	0.015	1.000	0.014	0.961
nC-13 Tridecane	0.011	0.952	0.011	1.006	0.011	1.000	0.011	0.961
nC-14 Tetradecane	0.026	0.952	0.027	1.006	0.027	1.000	0.026	0.961
nC-15 Pentadecane	0.023	0.952	0.024	1.006	0.024	1.000	0.023	0.961
nC-16 Hexadecane	0.021	0.952	0.023	1.006	0.022	1.000	0.022	0.961
nC-17 Heptadecane	0.046	0.952	0.048	1.006	0.048	1.000	0.046	0.961
Pristane	0.044	0.952	0.047	1.006	0.046	1.000	0.045	0.961
nC-18 Octadecane	0.067	0.952	0.071	1.006	0.070	1.000	0.068	0.961
Phytane	0.069	0.952	0.073	1.006	0.073	1.000	0.070	0.961
nC-19 Nonadecane	0.038	0.952	0.040	1.006	0.039	1.000	0.038	0.961
nC-20 Eicosane	0.039	0.952	0.042	1.006	0.041	1.000	0.040	0.961
nC-21 Heneicosane	0.033	0.952	0.035	1.006	0.034	1.000	0.033	0.961
nC-22 Docosane	0.066	0.952	0.070	1.006	0.070	1.000	0.067	0.961
nC-23 Tricosane	0.037	0.952	0.039	1.006	0.039	1.000	0.037	0.961
nC-24 Tetracosane	0.059	0.952	0.062	1.006	0.062	1.000	0.059	0.961
nC-25 Pentacosane	0.186	0.952	0.196	1.006	0.195	1.000	0.187	0.961
nC-26 Hexacosane	0.157	0.952	0.166	1.006	0.165	1.000	0.158	0.961
nC-27 Heptacosane	0.124	0.952	0.131	1.006	0.130	1.000	0.125	0.961
nC-28 Octacosane	0.199	0.952	0.210	1.006	0.208	1.000	0.200	0.961
nC-29 Nonacosane	0.150	0.952	0.158	1.006	0.157	1.000	0.151	0.961
nC-30 Triacontane	0.083	0.952	0.087	1.006	0.087	1.000	0.083	0.961
nC-31 Hentriacontane	0.084	0.952	0.089	1.006	0.088	1.000	0.085	0.961
nC-32 Dotriacontane	0.048	0.952	0.051	1.006	0.051	1.000	0.049	0.961
nC-33 Tritriacontane	0.070	0.952	0.074	1.006	0.074	1.000	0.071	0.961
nC-34 Tetratriacontane	0.069	0.952	0.073	1.006	0.073	1.000	0.070	0.961
nC-35 Pentatriacontane	0.034	0.952	0.036	1.006	0.036	1.000	0.034	0.961

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523836-001 PS		3523837-001 PS		0		3523838-001 PS	
RCAT ID	2010355-35		2010355-36		Method BLK		2010355-37	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1014		994		1000		1041	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.221	4.931	0.226	5.030	0.226	5.030	0.226	5.030
C1-Naphthalenes	0.221	4.931	0.226	5.030	0.226	5.030	0.226	5.030
C2-Naphthalenes	0.221	4.931	0.226	5.030	0.226	5.030	0.226	5.030
C3-Naphthalenes	0.221	4.931	0.226	5.030	0.226	5.030	0.226	5.030
C4-Naphthalenes	0.221	4.931	0.226	5.030	0.226	5.030	0.226	5.030
Fluorene	0.507	4.931	0.517	5.030	0.517	5.030	0.517	5.030
C1-Fluorenes	0.507	4.931	0.517	5.030	0.517	5.030	0.517	5.030
C2-Fluorenes	0.507	4.931	0.517	5.030	0.517	5.030	0.517	5.030
C3- Fluorenes	0.507	4.931	0.517	5.030	0.517	5.030	0.517	5.030
Dibenzothiophene	0.650	4.931	0.663	5.030	0.663	5.030	0.663	5.030
C1-Dibenzothiophenes	0.650	4.931	0.663	5.030	0.663	5.030	0.663	5.030
C2-Dibenzothiophenes	0.650	4.931	0.663	5.030	0.663	5.030	0.663	5.030
C3- Dibenzothiophenes	0.650	4.931	0.663	5.030	0.663	5.030	0.663	5.030
Phenanthrene	0.378	4.931	0.385	5.030	0.385	5.030	0.385	5.030
C1-Phenanthrenes	0.378	4.931	0.385	5.030	0.385	5.030	0.385	5.030
C2-Phenanthrenes	0.378	4.931	0.385	5.030	0.385	5.030	0.385	5.030
C3-Phenanthrenes	0.378	4.931	0.385	5.030	0.385	5.030	0.385	5.030
C4-Phenanthrenes	0.378	4.931	0.385	5.030	0.385	5.030	0.385	5.030
Anthracene	0.393	4.931	0.400	5.030	0.400	5.030	0.400	5.030
Fluoranthene	0.673	4.931	0.687	5.030	0.687	5.030	0.687	5.030
Pyrene	0.798	4.931	0.814	5.030	0.814	5.030	0.814	5.030
C1- Pyrenes	0.798	4.931	0.814	5.030	0.814	5.030	0.814	5.030
C2- Pyrenes	0.798	4.931	0.814	5.030	0.814	5.030	0.814	5.030
C3- Pyrenes	0.798	4.931	0.814	5.030	0.814	5.030	0.814	5.030
C4- Pyrenes	0.798	4.931	0.814	5.030	0.814	5.030	0.814	5.030
Naphthobenzothiophene	0.650	4.931	0.663	5.030	0.663	5.030	0.663	5.030
C-1 Naphthobenzothiophenes	0.650	4.931	0.663	5.030	0.663	5.030	0.663	5.030
C-2 Naphthobenzothiophenes	0.650	4.931	0.663	5.030	0.663	5.030	0.663	5.030
C-3 Naphthobenzothiophenes	0.650	4.931	0.663	5.030	0.663	5.030	0.663	5.030
Benzo (a) Anthracene	1.083	4.931	1.105	5.030	1.105	5.030	1.105	5.030
Chrysene	1.083	4.931	1.105	5.030	1.105	5.030	1.105	5.030
C1- Chrysenes	1.083	4.931	1.105	5.030	1.105	5.030	1.105	5.030
C2- Chrysenes	1.083	4.931	1.105	5.030	1.105	5.030	1.105	5.030
C3- Chrysenes	1.083	4.931	1.105	5.030	1.105	5.030	1.105	5.030
C4- Chrysenes	1.083	4.931	1.105	5.030	1.105	5.030	1.105	5.030
Benzo (b) Fluoranthene	0.741	4.931	0.756	5.030	0.756	5.030	0.756	5.030
Benzo (k) Fluoranthene	0.696	4.931	0.710	5.030	0.710	5.030	0.710	5.030
Benzo (e) Pyrene	0.995	4.931	1.015	5.030	1.015	5.030	1.015	5.030
Benzo (a) Pyrene	0.831	4.931	0.848	5.030	0.848	5.030	0.848	5.030
Perylene	0.264	4.931	0.270	5.030	0.270	5.030	0.270	5.030
Indeno (1,2,3 - cd) Pyrene	1.933	4.931	1.972	5.030	1.972	5.030	1.972	5.030
Dibenzo (a,h) anthracene	1.687	4.931	1.721	5.030	1.721	5.030	1.721	5.030
Benzo (g,h,i) perylene	2.175	4.931	2.219	5.030	2.219	5.030	2.219	5.030

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523839-001 PS	3523840-001 PS	3523840-002 PS	3523841-001 PS
RCAT ID	2010355-38	2010355-39	2010355-40	2010355-41
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1050	1034	1023	1053
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	U	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	0.044 J	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	0.134 J	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	0.177 J	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	0.117 J	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.134</b>	<b>0.000</b>	<b>0.339</b>	<b>0.000</b>
<b>Surrogate Recovery (%)</b>				
5 Alpha Androstane	0	0	0	0

HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523839-001 PS	3523840-001 PS	3523840-002 PS	3523841-001 PS
RCAT ID	2010355-38	2010355-39	2010355-40	2010355-41
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0	0	0	0
Sample Size	1050	1034	1023	1053
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	1.61 J	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<hr/>				
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0
<hr/>				

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523839-001 PS		3523840-001 PS		3523840-002 PS		3523841-001 PS	
RCAT ID	2010355-38		2010355-39		2010355-40		2010355-41	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1034		1023		1053	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.952	0.016	0.967	0.017	0.978	0.016	0.950
nC-11 Undecane	0.012	0.952	0.012	0.967	0.013	0.978	0.012	0.950
nC-12 Dodecane	0.014	0.952	0.014	0.967	0.014	0.978	0.014	0.950
nC-13 Tridecane	0.011	0.952	0.011	0.967	0.011	0.978	0.011	0.950
nC-14 Tetradecane	0.026	0.952	0.026	0.967	0.027	0.978	0.026	0.950
nC-15 Pentadecane	0.023	0.952	0.023	0.967	0.023	0.978	0.023	0.950
nC-16 Hexadecane	0.021	0.952	0.022	0.967	0.022	0.978	0.021	0.950
nC-17 Heptadecane	0.046	0.952	0.046	0.967	0.047	0.978	0.046	0.950
Pristane	0.044	0.952	0.045	0.967	0.045	0.978	0.044	0.950
nC-18 Octadecane	0.067	0.952	0.068	0.967	0.069	0.978	0.067	0.950
Phytane	0.069	0.952	0.070	0.967	0.071	0.978	0.069	0.950
nC-19 Nonadecane	0.038	0.952	0.038	0.967	0.039	0.978	0.037	0.950
nC-20 Eicosane	0.039	0.952	0.040	0.967	0.041	0.978	0.039	0.950
nC-21 Heneicosane	0.033	0.952	0.033	0.967	0.034	0.978	0.033	0.950
nC-22 Docosane	0.066	0.952	0.067	0.967	0.068	0.978	0.066	0.950
nC-23 Tricosane	0.037	0.952	0.038	0.967	0.038	0.978	0.037	0.950
nC-24 Tetracosane	0.059	0.952	0.060	0.967	0.060	0.978	0.058	0.950
nC-25 Pentacosane	0.186	0.952	0.188	0.967	0.190	0.978	0.185	0.950
nC-26 Hexacosane	0.157	0.952	0.159	0.967	0.161	0.978	0.157	0.950
nC-27 Heptacosane	0.124	0.952	0.126	0.967	0.127	0.978	0.124	0.950
nC-28 Octacosane	0.199	0.952	0.202	0.967	0.204	0.978	0.198	0.950
nC-29 Nonacosane	0.150	0.952	0.152	0.967	0.153	0.978	0.149	0.950
nC-30 Triacontane	0.083	0.952	0.084	0.967	0.085	0.978	0.082	0.950
nC-31 Hentriacontane	0.084	0.952	0.085	0.967	0.086	0.978	0.084	0.950
nC-32 Dotriacontane	0.048	0.952	0.049	0.967	0.049	0.978	0.048	0.950
nC-33 Trtriacontane	0.070	0.952	0.071	0.967	0.072	0.978	0.070	0.950
nC-34 Tetratriacontane	0.069	0.952	0.070	0.967	0.071	0.978	0.069	0.950
nC-35 Pentatriacontane	0.034	0.952	0.035	0.967	0.035	0.978	0.034	0.950

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523839-001 PS		3523840-001 PS		3523840-002 PS		3523841-001 PS	
RCAT ID	2010355-38		2010355-39		2010355-40		2010355-41	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1034		1023		1053	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.226	5.030	0.226	5.030	0.226	5.030	0.226	5.030
C1-Naphthalenes	0.226	5.030	0.226	5.030	0.226	5.030	0.226	5.030
C2-Naphthalenes	0.226	5.030	0.226	5.030	0.226	5.030	0.226	5.030
C3-Naphthalenes	0.226	5.030	0.226	5.030	0.226	5.030	0.226	5.030
C4-Naphthalenes	0.226	5.030	0.226	5.030	0.226	5.030	0.226	5.030
Fluorene	0.517	5.030	0.517	5.030	0.517	5.030	0.517	5.030
C1-Fluorenes	0.517	5.030	0.517	5.030	0.517	5.030	0.517	5.030
C2-Fluorenes	0.517	5.030	0.517	5.030	0.517	5.030	0.517	5.030
C3- Fluorenes	0.517	5.030	0.517	5.030	0.517	5.030	0.517	5.030
Dibenzothiophene	0.663	5.030	0.663	5.030	0.663	5.030	0.663	5.030
C1-Dibenzothiophenes	0.663	5.030	0.663	5.030	0.663	5.030	0.663	5.030
C2-Dibenzothiophenes	0.663	5.030	0.663	5.030	0.663	5.030	0.663	5.030
C3- Dibenzothiophenes	0.663	5.030	0.663	5.030	0.663	5.030	0.663	5.030
Phenanthrene	0.385	5.030	0.385	5.030	0.385	5.030	0.385	5.030
C1-Phenanthrenes	0.385	5.030	0.385	5.030	0.385	5.030	0.385	5.030
C2-Phenanthrenes	0.385	5.030	0.385	5.030	0.385	5.030	0.385	5.030
C3-Phenanthrenes	0.385	5.030	0.385	5.030	0.385	5.030	0.385	5.030
C4-Phenanthrenes	0.385	5.030	0.385	5.030	0.385	5.030	0.385	5.030
Anthracene	0.400	5.030	0.400	5.030	0.400	5.030	0.400	5.030
Fluoranthene	0.687	5.030	0.687	5.030	0.687	5.030	0.687	5.030
Pyrene	0.814	5.030	0.814	5.030	0.814	5.030	0.814	5.030
C1- Pyrenes	0.814	5.030	0.814	5.030	0.814	5.030	0.814	5.030
C2- Pyrenes	0.814	5.030	0.814	5.030	0.814	5.030	0.814	5.030
C3- Pyrenes	0.814	5.030	0.814	5.030	0.814	5.030	0.814	5.030
C4- Pyrenes	0.814	5.030	0.814	5.030	0.814	5.030	0.814	5.030
Naphthobenzothiophene	0.663	5.030	0.663	5.030	0.663	5.030	0.663	5.030
C-1 Naphthobenzothiophenes	0.663	5.030	0.663	5.030	0.663	5.030	0.663	5.030
C-2 Naphthobenzothiophenes	0.663	5.030	0.663	5.030	0.663	5.030	0.663	5.030
C-3 Naphthobenzothiophenes	0.663	5.030	0.663	5.030	0.663	5.030	0.663	5.030
Benzo (a) Anthracene	1.105	5.030	1.105	5.030	1.105	5.030	1.105	5.030
Chrysene	1.105	5.030	1.105	5.030	1.105	5.030	1.105	5.030
C1- Chrysenes	1.105	5.030	1.105	5.030	1.105	5.030	1.105	5.030
C2- Chrysenes	1.105	5.030	1.105	5.030	1.105	5.030	1.105	5.030
C3- Chrysenes	1.105	5.030	1.105	5.030	1.105	5.030	1.105	5.030
C4- Chrysenes	1.105	5.030	1.105	5.030	1.105	5.030	1.105	5.030
Benzo (b) Fluoranthene	0.756	5.030	0.756	5.030	0.756	5.030	0.756	5.030
Benzo (k) Fluoranthene	0.710	5.030	0.710	5.030	0.710	5.030	0.710	5.030
Benzo (e) Pyrene	1.015	5.030	1.015	5.030	1.015	5.030	1.015	5.030
Benzo (a) Pyrene	0.848	5.030	0.848	5.030	0.848	5.030	0.848	5.030
Perylene	0.270	5.030	0.270	5.030	0.270	5.030	0.270	5.030
Indeno (1,2,3 - cd) Pyrene	1.972	5.030	1.972	5.030	1.972	5.030	1.972	5.030
Dibenzo (a,h) anthracene	1.721	5.030	1.721	5.030	1.721	5.030	1.721	5.030
Benzo (g,h,i) perylene	2.219	5.030	2.219	5.030	2.219	5.030	2.219	5.030

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523842-001 PS	3523843-001 PS	3523844-001 PS	3523845-001 PS
RCAT ID	2010355-42	2010355-43	2010355-44	2010355-45
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1053	1048	1049	1047
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	0.033 J	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	0.056 J	0.063 J	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	0.038 J	U	0.039 J	U
nC-24 Tetracosane	U	0.113 J	0.086 J	0.066 J
nC-25 Pentacosane	U	0.258 J	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Triteriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.038</b>	<b>0.460</b>	<b>0.188</b>	<b>0.066</b>

---

**Surrogate Recovery (%)**

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

---



## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523842-001 PS	3523843-001 PS	3523844-001 PS	3523845-001 PS
RCAT ID	2010355-42	2010355-43	2010355-44	2010355-45
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0.000	0	0	0
Sample Size	1053	1048	1049	1047
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	0.306 J	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.306</b>	<b>0.000</b>
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523842-001 PS		3523843-001 PS		3523844-001 PS		3523845-001 PS	
RCAT ID	2010355-42		2010355-43		2010355-44		2010355-45	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1053		1048		1049		1047	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.950	0.016	0.954	0.016	0.953	0.016	0.955
nC-11 Undecane	0.012	0.953	0.012	0.954	0.012	0.953	0.012	0.955
nC-12 Dodecane	0.014	0.953	0.014	0.954	0.014	0.953	0.014	0.955
nC-13 Tridecane	0.011	0.953	0.011	0.954	0.011	0.953	0.011	0.955
nC-14 Tetradecane	0.026	0.953	0.026	0.954	0.026	0.953	0.026	0.955
nC-15 Pentadecane	0.023	0.953	0.023	0.954	0.023	0.953	0.023	0.955
nC-16 Hexadecane	0.021	0.953	0.021	0.954	0.021	0.953	0.021	0.955
nC-17 Heptadecane	0.046	0.953	0.046	0.954	0.046	0.953	0.046	0.955
Pristane	0.044	0.953	0.044	0.954	0.044	0.953	0.044	0.955
nC-18 Octadecane	0.067	0.953	0.067	0.954	0.067	0.953	0.067	0.955
Phytane	0.069	0.953	0.069	0.954	0.069	0.953	0.069	0.955
nC-19 Nonadecane	0.038	0.953	0.038	0.954	0.038	0.953	0.038	0.955
nC-20 Eicosane	0.040	0.953	0.040	0.954	0.040	0.953	0.040	0.955
nC-21 Heneicosane	0.033	0.953	0.033	0.954	0.033	0.953	0.033	0.955
nC-22 Docosane	0.066	0.953	0.066	0.954	0.066	0.953	0.066	0.955
nC-23 Tricosane	0.037	0.953	0.037	0.954	0.037	0.953	0.037	0.955
nC-24 Tetracosane	0.059	0.953	0.059	0.954	0.059	0.953	0.059	0.955
nC-25 Pentacosane	0.186	0.953	0.186	0.954	0.186	0.953	0.186	0.955
nC-26 Hexacosane	0.157	0.953	0.157	0.954	0.157	0.953	0.157	0.955
nC-27 Heptacosane	0.124	0.953	0.124	0.954	0.124	0.953	0.124	0.955
nC-28 Octacosane	0.199	0.953	0.199	0.954	0.199	0.953	0.199	0.955
nC-29 Nonacosane	0.150	0.953	0.150	0.954	0.150	0.953	0.150	0.955
nC-30 Triacontane	0.083	0.953	0.083	0.954	0.083	0.953	0.083	0.955
nC-31 Hentriacontane	0.084	0.953	0.084	0.954	0.084	0.953	0.084	0.955
nC-32 Dotriacontane	0.048	0.953	0.048	0.954	0.048	0.953	0.048	0.955
nC-33 Tritriacontane	0.070	0.953	0.071	0.954	0.070	0.953	0.071	0.955
nC-34 Tetratriacontane	0.069	0.953	0.069	0.954	0.069	0.953	0.069	0.955
nC-35 Pentatriacontane	0.034	0.953	0.034	0.954	0.034	0.953	0.034	0.955

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523842-001 PS		3523843-001 PS		3523844-001 PS		3523845-001 PS	
RCAT ID	2010355-42		2010355-43		2010355-44		2010355-45	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1053		1048		1049		1047	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.213	4.748	0.214	4.771	0.214	4.771	0.214	4.771
C1-Naphthalenes	0.213	4.748	0.214	4.771	0.214	4.771	0.214	4.771
C2-Naphthalenes	0.213	4.748	0.214	4.771	0.214	4.771	0.214	4.771
C3-Naphthalenes	0.213	4.748	0.214	4.771	0.214	4.771	0.214	4.771
C4-Naphthalenes	0.213	4.748	0.214	4.771	0.214	4.771	0.214	4.771
Fluorene	0.488	4.748	0.491	4.771	0.491	4.771	0.491	4.771
C1-Fluorenes	0.488	4.748	0.491	4.771	0.491	4.771	0.491	4.771
C2-Fluorenes	0.488	4.748	0.491	4.771	0.491	4.771	0.491	4.771
C3- Fluorenes	0.488	4.748	0.491	4.771	0.491	4.771	0.491	4.771
Dibenzothiophene	0.626	4.748	0.629	4.771	0.629	4.771	0.629	4.771
C1-Dibenzothiophenes	0.626	4.748	0.629	4.771	0.629	4.771	0.629	4.771
C2-Dibenzothiophenes	0.626	4.748	0.629	4.771	0.629	4.771	0.629	4.771
C3- Dibenzothiophenes	0.626	4.748	0.629	4.771	0.629	4.771	0.629	4.771
Phenanthrene	0.364	4.748	0.365	4.771	0.365	4.771	0.365	4.771
C1-Phenanthrenes	0.364	4.748	0.365	4.771	0.365	4.771	0.365	4.771
C2-Phenanthrenes	0.364	4.748	0.365	4.771	0.365	4.771	0.365	4.771
C3-Phenanthrenes	0.364	4.748	0.365	4.771	0.365	4.771	0.365	4.771
C4-Phenanthrenes	0.364	4.748	0.365	4.771	0.365	4.771	0.365	4.771
Anthracene	0.378	4.748	0.380	4.771	0.380	4.771	0.380	4.771
Fluoranthene	0.648	4.748	0.651	4.771	0.651	4.771	0.651	4.771
Pyrene	0.768	4.748	0.772	4.771	0.772	4.771	0.772	4.771
C1- Pyrenes	0.768	4.748	0.772	4.771	0.772	4.771	0.772	4.771
C2- Pyrenes	0.768	4.748	0.772	4.771	0.772	4.771	0.772	4.771
C3- Pyrenes	0.768	4.748	0.772	4.771	0.772	4.771	0.772	4.771
C4- Pyrenes	0.768	4.748	0.772	4.771	0.772	4.771	0.772	4.771
Naphthobenzothiophene	0.626	4.748	0.629	4.771	0.629	4.771	0.629	4.771
C-1 Naphthobenzothiophenes	0.626	4.748	0.629	4.771	0.629	4.771	0.629	4.771
C-2 Naphthobenzothiophenes	0.626	4.748	0.629	4.771	0.629	4.771	0.629	4.771
C-3 Naphthobenzothiophenes	0.626	4.748	0.629	4.771	0.629	4.771	0.629	4.771
Benzo (a) Anthracene	1.043	4.748	1.048	4.771	1.048	4.771	1.048	4.771
Chrysene	1.043	4.748	1.048	4.771	1.048	4.771	1.048	4.771
C1- Chrysenes	1.043	4.748	1.048	4.771	1.048	4.771	1.048	4.771
C2- Chrysenes	1.043	4.748	1.048	4.771	1.048	4.771	1.048	4.771
C3- Chrysenes	1.043	4.748	1.048	4.771	1.048	4.771	1.048	4.771
C4- Chrysenes	1.043	4.748	1.048	4.771	1.048	4.771	1.048	4.771
Benzo (b) Fluoranthene	0.713	4.748	0.717	4.771	0.717	4.771	0.717	4.771
Benzo (k) Fluoranthene	0.670	4.748	0.673	4.771	0.673	4.771	0.673	4.771
Benzo (e) Pyrene	0.959	4.748	0.963	4.771	0.963	4.771	0.963	4.771
Benzo (a) Pyrene	0.801	4.748	0.804	4.771	0.804	4.771	0.804	4.771
Perylene	0.255	4.748	0.256	4.771	0.256	4.771	0.256	4.771
Indeno (1,2,3 - cd) Pyrene	1.861	4.748	1.870	4.771	1.870	4.771	1.870	4.771
Dibenzo (a,h) anthracene	1.625	4.748	1.632	4.771	1.632	4.771	1.632	4.771
Benzo (g,h,i) perylene	2.095	4.748	2.105	4.771	2.105	4.771	2.105	4.771

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523846-001 PS	152912 BLANK	152913 LCS	152914 LCSD
RCAT ID	2010355-46	2010355-47	2010355-48	2010355-49
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1049	1000	1000	1000
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	U	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

---

**Surrogate Recovery (%)**

5 Alpha Androstane	0	0	0	0
--------------------	---	---	---	---

---

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523846-001 P5	152912 BLANK	152913 LCS	152914 LCSD
RCAT ID	2010355-46	2010355-47	2010355-48	2010355-49
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0	0	0	0
Sample Size	1049	1000	1000	1000
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	2230	2300
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	2800	2770
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	2490	2420
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	2950	2920
Fluoranthene	U	U	3950	3810
Pyrene	U	U	3930	3770
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	3020	2740
Chrysene	U	U	3950	3460
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	2620	2870
Benzo (k) Fluoranthene	U	U	3430	3590
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	2550	2340
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	1680	1620
Dibenzo (a,h) anthracene	U	U	1930	1920
Benzo (g,h,i) perylene	U	U	1720	1590
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>39300</b>	<b>38100</b>
<b>% Surrogate Recovery</b>				
Phenanthrene d-10	0	0	0	0

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523846-001 PS		152912 BLANK		152913 LCS		152914 LCSD	
RCAT ID	2010355-46		2010355-47		2010355-48		2010355-49	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1049		1000		1000		1000	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.953	0.017	1.000	0.017	1.000	0.017	1.000
nC-11 Undecane	0.012	0.953	0.013	1.000	0.013	1.000	0.013	1.000
nC-12 Dodecane	0.014	0.953	0.015	1.000	0.015	1.000	0.015	1.000
nC-13 Tridecane	0.011	0.953	0.011	1.000	0.011	1.000	0.011	1.000
nC-14 Tetradecane	0.026	0.953	0.027	1.000	0.027	1.000	0.027	1.000
nC-15 Pentadecane	0.023	0.953	0.024	1.000	0.024	1.000	0.024	1.000
nC-16 Hexadecane	0.021	0.953	0.022	1.000	0.022	1.000	0.022	1.000
nC-17 Heptadecane	0.046	0.953	0.048	1.000	0.048	1.000	0.048	1.000
Pristane	0.044	0.953	0.046	1.000	0.046	1.000	0.046	1.000
nC-18 Octadecane	0.067	0.953	0.070	1.000	0.070	1.000	0.070	1.000
Phytane	0.069	0.953	0.073	1.000	0.073	1.000	0.073	1.000
nC-19 Nonadecane	0.038	0.953	0.039	1.000	0.039	1.000	0.039	1.000
nC-20 Eicosane	0.040	0.953	0.041	1.000	0.041	1.000	0.041	1.000
nC-21 Heneicosane	0.033	0.953	0.034	1.000	0.034	1.000	0.034	1.000
nC-22 Docosane	0.066	0.953	0.070	1.000	0.070	1.000	0.070	1.000
nC-23 Tricosane	0.037	0.953	0.039	1.000	0.039	1.000	0.039	1.000
nC-24 Tetracosane	0.059	0.953	0.062	1.000	0.062	1.000	0.062	1.000
nC-25 Pentacosane	0.186	0.953	0.195	1.000	0.195	1.000	0.195	1.000
nC-26 Hexacosane	0.157	0.953	0.165	1.000	0.165	1.000	0.165	1.000
nC-27 Heptacosane	0.124	0.953	0.130	1.000	0.130	1.000	0.130	1.000
nC-28 Octacosane	0.199	0.953	0.208	1.000	0.208	1.000	0.208	1.000
nC-29 Nonacosane	0.150	0.953	0.157	1.000	0.157	1.000	0.157	1.000
nC-30 Triacontane	0.083	0.953	0.087	1.000	0.087	1.000	0.087	1.000
nC-31 Hentriacontane	0.084	0.953	0.088	1.000	0.088	1.000	0.088	1.000
nC-32 Dotriacontane	0.048	0.953	0.051	1.000	0.051	1.000	0.051	1.000
nC-33 Tritriacontane	0.070	0.953	0.074	1.000	0.074	1.000	0.074	1.000
nC-34 Tetratriacontane	0.069	0.953	0.073	1.000	0.073	1.000	0.073	1.000
nC-35 Pentatriacontane	0.034	0.953	0.036	1.000	0.036	1.000	0.036	1.000

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523846-001 PS		152912 BLANK		152913 LCS		152914 LCSD	
RCAT ID	2010355-46		2010355-47		2010355-48		2010355-49	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1049		1000		1000		1000	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
C1-Naphthalenes	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
C2-Naphthalenes	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
C3-Naphthalenes	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
C4-Naphthalenes	0.214	4.771	0.214	4.771	0.214	4.771	0.214	4.771
Fluorene	0.491	4.771	0.491	4.771	0.491	4.771	0.491	4.771
C1-Fluorenes	0.491	4.771	0.491	4.771	0.491	4.771	0.491	4.771
C2-Fluorenes	0.491	4.771	0.491	4.771	0.491	4.771	0.491	4.771
C3- Fluorenes	0.491	4.771	0.491	4.771	0.491	4.771	0.491	4.771
Dibenzothiophene	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C1-Dibenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C2-Dibenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C3- Dibenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
Phenanthrene	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
C1-Phenanthrenes	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
C2-Phenanthrenes	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
C3-Phenanthrenes	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
C4-Phenanthrenes	0.365	4.771	0.365	4.771	0.365	4.771	0.365	4.771
Anthracene	0.380	4.771	0.380	4.771	0.380	4.771	0.380	4.771
Fluoranthene	0.651	4.771	0.651	4.771	0.651	4.771	0.651	4.771
Pyrene	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
C1- Pyrenes	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
C2- Pyrenes	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
C3- Pyrenes	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
C4- Pyrenes	0.772	4.771	0.772	4.771	0.772	4.771	0.772	4.771
Naphthobenzothiophene	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C-1 Naphthobenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C-2 Naphthobenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
C-3 Naphthobenzothiophenes	0.629	4.771	0.629	4.771	0.629	4.771	0.629	4.771
Benzo (a) Anthracene	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
Chrysene	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
C1- Chrysenes	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
C2- Chrysenes	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
C3- Chrysenes	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
C4- Chrysenes	1.048	4.771	1.048	4.771	1.048	4.771	1.048	4.771
Benzo (b) Fluoranthene	0.717	4.771	0.717	4.771	0.717	4.771	0.717	4.771
Benzo (k) Fluoranthene	0.673	4.771	0.673	4.771	0.673	4.771	0.673	4.771
Benzo (e) Pyrene	0.963	4.771	0.963	4.771	0.963	4.771	0.963	4.771
Benzo (a) Pyrene	0.804	4.771	0.804	4.771	0.804	4.771	0.804	4.771
Perylene	0.256	4.771	0.256	4.771	0.256	4.771	0.256	4.771
Indeno (1,2,3 - cd) Pyrene	1.870	4.771	1.870	4.771	1.870	4.771	1.870	4.771
Dibenzo (a,h) anthracene	1.632	4.771	1.632	4.771	1.632	4.771	1.632	4.771
Benzo (g,h,i) perylene	2.105	4.771	2.105	4.771	2.105	4.771	2.105	4.771

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523847-001 P5	Laboratory Water Blank	198 CLIFTON HILL-A	250 CLIFTON HILL-A
RCAT ID	2010355-50	MBW10358A	2010356-01	2010356-03
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1049	1000	1050	1050
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	U	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	U	U	U	U
Phytane	U	U	U	U
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
0.223				
<b>Surrogate Recovery (%)</b>				
5 Alpha Androstane	0	74	86	88



## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523847-001 PS	Laboratory Water Blank	198 CLIFTON HILL-A	250 CLIFTON HILL-A
RCAT ID	2010355-50	MBW10358A	2010356-01	2010356-03
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0.000	0	0	0
Sample Size	1049	1000	1050	1050
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

**% Surrogate Recovery**

Phenanthrene d-10	0	73	76	77
-------------------	---	----	----	----

HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	3523847-001 PS		Laboratory Water Blank		198 CLIFTON HILL-A		250 CLIFTON HILL-A	
RCAT ID	2010355-50		MBW10358A		2010356-01		2010356-03	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1049		1000		1050		1050	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.953	0.017	1.000	0.016	0.952	0.016	0.952
nC-11 Undecane	0.012	0.952	0.013	1.000	0.012	0.952	0.012	0.952
nC-12 Dodecane	0.014	0.952	0.015	1.000	0.014	0.952	0.014	0.952
nC-13 Tridecane	0.011	0.952	0.011	1.000	0.011	0.952	0.011	0.952
nC-14 Tetradecane	0.026	0.952	0.027	1.000	0.026	0.952	0.026	0.952
nC-15 Pentadecane	0.023	0.952	0.024	1.000	0.023	0.952	0.023	0.952
nC-16 Hexadecane	0.021	0.952	0.022	1.000	0.021	0.952	0.021	0.952
nC-17 Heptadecane	0.046	0.952	0.048	1.000	0.046	0.952	0.046	0.952
Pristane	0.044	0.952	0.046	1.000	0.044	0.952	0.044	0.952
nC-18 Octadecane	0.067	0.952	0.070	1.000	0.067	0.952	0.067	0.952
Phytane	0.069	0.952	0.073	1.000	0.069	0.952	0.069	0.952
nC-19 Nonadecane	0.038	0.952	0.039	1.000	0.038	0.952	0.038	0.952
nC-20 Eicosane	0.039	0.952	0.041	1.000	0.039	0.952	0.039	0.952
nC-21 Heneicosane	0.033	0.952	0.034	1.000	0.033	0.952	0.033	0.952
nC-22 Docosane	0.066	0.952	0.070	1.000	0.066	0.952	0.066	0.952
nC-23 Tricosane	0.037	0.952	0.039	1.000	0.037	0.952	0.037	0.952
nC-24 Tetracosane	0.059	0.952	0.062	1.000	0.059	0.952	0.059	0.952
nC-25 Pentacosane	0.186	0.952	0.195	1.000	0.186	0.952	0.186	0.952
nC-26 Hexacosane	0.157	0.952	0.165	1.000	0.157	0.952	0.157	0.952
nC-27 Heptacosane	0.124	0.952	0.130	1.000	0.124	0.952	0.124	0.952
nC-28 Octacosane	0.199	0.952	0.208	1.000	0.199	0.952	0.199	0.952
nC-29 Nonacosane	0.150	0.952	0.157	1.000	0.150	0.952	0.150	0.952
nC-30 Triacontane	0.083	0.952	0.087	1.000	0.083	0.952	0.083	0.952
nC-31 Hentriacontane	0.084	0.952	0.088	1.000	0.084	0.952	0.084	0.952
nC-32 Dotriacontane	0.048	0.952	0.051	1.000	0.048	0.952	0.048	0.952
nC-33 Tritriacontane	0.070	0.952	0.074	1.000	0.070	0.952	0.070	0.952
nC-34 Tetratriacontane	0.069	0.952	0.073	1.000	0.069	0.952	0.069	0.952
nC-35 Pentatriacontane	0.034	0.952	0.036	1.000	0.034	0.952	0.034	0.952

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	3523847-001 PS		Laboratory Water Blank		198 CLIFTON HILL-A		250 CLIFTON HILL-A	
RCAT ID	2010355-50		MBW10358A		2010356-01		2010356-03	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1049		1000		1050		1050	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.214	4.766	0.225	5.000	0.225	5.000	0.225	5.000
C1-Naphthalenes	0.214	4.766	0.225	5.000	0.225	5.000	0.225	5.000
C2-Naphthalenes	0.214	4.766	0.225	5.000	0.225	5.000	0.225	5.000
C3-Naphthalenes	0.214	4.766	0.225	5.000	0.225	5.000	0.225	5.000
C4-Naphthalenes	0.214	4.766	0.225	5.000	0.225	5.000	0.225	5.000
Fluorene	0.490	4.766	0.514	5.000	0.514	5.000	0.514	5.000
C1-Fluorenes	0.490	4.766	0.514	5.000	0.514	5.000	0.514	5.000
C2-Fluorenes	0.490	4.766	0.514	5.000	0.514	5.000	0.514	5.000
C3- Fluorenes	0.490	4.766	0.514	5.000	0.514	5.000	0.514	5.000
Dibenzothiophene	0.628	4.766	0.659	5.000	0.659	5.000	0.659	5.000
C1-Dibenzothiophenes	0.628	4.766	0.659	5.000	0.659	5.000	0.659	5.000
C2-Dibenzothiophenes	0.628	4.766	0.659	5.000	0.659	5.000	0.659	5.000
C3- Dibenzothiophenes	0.628	4.766	0.659	5.000	0.659	5.000	0.659	5.000
Phenanthrene	0.365	4.766	0.383	5.000	0.383	5.000	0.383	5.000
C1-Phenanthrenes	0.365	4.766	0.383	5.000	0.383	5.000	0.383	5.000
C2-Phenanthrenes	0.365	4.766	0.383	5.000	0.383	5.000	0.383	5.000
C3-Phenanthrenes	0.365	4.766	0.383	5.000	0.383	5.000	0.383	5.000
C4-Phenanthrenes	0.365	4.766	0.383	5.000	0.383	5.000	0.383	5.000
Anthracene	0.379	4.766	0.398	5.000	0.398	5.000	0.398	5.000
Fluoranthene	0.651	4.766	0.683	5.000	0.683	5.000	0.683	5.000
Pyrene	0.771	4.766	0.809	5.000	0.809	5.000	0.809	5.000
C1- Pyrenes	0.771	4.766	0.809	5.000	0.809	5.000	0.809	5.000
C2- Pyrenes	0.771	4.766	0.809	5.000	0.809	5.000	0.809	5.000
C3- Pyrenes	0.771	4.766	0.809	5.000	0.809	5.000	0.809	5.000
C4- Pyrenes	0.771	4.766	0.809	5.000	0.809	5.000	0.809	5.000
Naphthobenzothiophene	0.628	4.766	0.659	5.000	0.659	5.000	0.659	5.000
C-1 Naphthobenzothiophenes	0.628	4.766	0.659	5.000	0.659	5.000	0.659	5.000
C-2 Naphthobenzothiophenes	0.628	4.766	0.659	5.000	0.659	5.000	0.659	5.000
C-3 Naphthobenzothiophenes	0.628	4.766	0.659	5.000	0.659	5.000	0.659	5.000
Benzo (a) Anthracene	1.047	4.766	1.098	5.000	1.098	5.000	1.098	5.000
Chrysene	1.047	4.766	1.098	5.000	1.098	5.000	1.098	5.000
C1- Chrysenes	1.047	4.766	1.098	5.000	1.098	5.000	1.098	5.000
C2- Chrysenes	1.047	4.766	1.098	5.000	1.098	5.000	1.098	5.000
C3- Chrysenes	1.047	4.766	1.098	5.000	1.098	5.000	1.098	5.000
C4- Chrysenes	1.047	4.766	1.098	5.000	1.098	5.000	1.098	5.000
Benzo (b) Fluoranthene	0.716	4.766	0.751	5.000	0.751	5.000	0.751	5.000
Benzo (k) Fluoranthene	0.673	4.766	0.706	5.000	0.706	5.000	0.706	5.000
Benzo (e) Pyrene	0.962	4.766	1.009	5.000	1.009	5.000	1.009	5.000
Benzo (a) Pyrene	0.804	4.766	0.843	5.000	0.843	5.000	0.843	5.000
Perylene	0.256	4.766	0.268	5.000	0.268	5.000	0.268	5.000
Indeno (1,2,3 - cd) Pyrene	1.868	4.766	1.960	5.000	1.960	5.000	1.960	5.000
Dibenzo (a,h) anthracene	1.631	4.766	1.711	5.000	1.711	5.000	1.711	5.000
Benzo (g,h,i) perylene	2.103	4.766	2.206	5.000	2.206	5.000	2.206	5.000

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	57 CLIFTON HILL-A	34H CLIFTON HILL-A	309 CLIFTON HILL-A	207 CLIFTON HILL-A
RCAT ID	2010356-05	2010356-07	2010356-09	2010356-11
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1050	1050	1050	1050
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	U	U	U	U
nC-17 Heptadecane	U	U	U	U
Pristane	U	U	U	U
nC-18 Octadecane	<del>U</del> 0.069 J	<del>U</del> 0.077 J	<del>U</del> 0.115 J	<del>U</del> 0.127 J
Phytane	<del>U</del> 0.087 J	<del>U</del> 0.099 J	<del>U</del> 0.096 J	<del>U</del> 0.060 J
nC-19 Nonadecane	U	U	U	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	U	U	U	U
nC-32 Dotriacontane	U	U	U	U
nC-33 Tritriacontane	U	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
Total Alkanes	0.000 0.156	0.000 0.176	0.000 0.211	0.000 0.187
Surrogate Recovery (%)				
5 Alpha Androstane	92	85	85	98

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	57 CLIFTON HILL-A	34H CLIFTON HILL-A	309 CLIFTON HILL-A	207 CLIFTON HILL-A
RCAT ID	2010356-05	2010356-07	2010356-09	2010356-11
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0	0	0	0
Sample Size	1050	1050	1050	1050
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	U
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

**% Surrogate Recovery**

Phenanthrene d-10	77	74	79	92
-------------------	----	----	----	----

HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	57 CLIFTON HILL-A		34H CLIFTON HILL-A		309 CLIFTON HILL-A		207 CLIFTON HILL-A	
RCAT ID	2010356-05		2010356-07		2010356-09		2010356-11	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1050		1050		1050	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.952	0.016	0.952	0.016	0.952	0.016	0.952
nC-11 Undecane	0.012	0.952	0.012	0.952	0.012	0.952	0.012	0.952
nC-12 Dodecane	0.014	0.952	0.014	0.952	0.014	0.952	0.014	0.952
nC-13 Tridecane	0.011	0.952	0.011	0.952	0.011	0.952	0.011	0.952
nC-14 Tetradecane	0.026	0.952	0.026	0.952	0.026	0.952	0.026	0.952
nC-15 Pentadecane	0.023	0.952	0.023	0.952	0.023	0.952	0.023	0.952
nC-16 Hexadecane	0.021	0.952	0.021	0.952	0.021	0.952	0.021	0.952
nC-17 Heptadecane	0.046	0.952	0.046	0.952	0.046	0.952	0.046	0.952
Pristane	0.044	0.952	0.044	0.952	0.044	0.952	0.044	0.952
nC-18 Octadecane	0.067	0.952	0.067	0.952	0.067	0.952	0.067	0.952
Phytane	0.069	0.952	0.069	0.952	0.069	0.952	0.069	0.952
nC-19 Nonadecane	0.038	0.952	0.038	0.952	0.038	0.952	0.038	0.952
nC-20 Eicosane	0.039	0.952	0.039	0.952	0.039	0.952	0.039	0.952
nC-21 Heneicosane	0.033	0.952	0.033	0.952	0.033	0.952	0.033	0.952
nC-22 Docosane	0.066	0.952	0.066	0.952	0.066	0.952	0.066	0.952
nC-23 Tricosane	0.037	0.952	0.037	0.952	0.037	0.952	0.037	0.952
nC-24 Tetracosane	0.059	0.952	0.059	0.952	0.059	0.952	0.059	0.952
nC-25 Pentacosane	0.186	0.952	0.186	0.952	0.186	0.952	0.186	0.952
nC-26 Hexacosane	0.157	0.952	0.157	0.952	0.157	0.952	0.157	0.952
nC-27 Heptacosane	0.124	0.952	0.124	0.952	0.124	0.952	0.124	0.952
nC-28 Octacosane	0.199	0.952	0.199	0.952	0.199	0.952	0.199	0.952
nC-29 Nonacosane	0.150	0.952	0.150	0.952	0.150	0.952	0.150	0.952
nC-30 Triacontane	0.083	0.952	0.083	0.952	0.083	0.952	0.083	0.952
nC-31 Hentriacontane	0.084	0.952	0.084	0.952	0.084	0.952	0.084	0.952
nC-32 Dotriacontane	0.048	0.952	0.048	0.952	0.048	0.952	0.048	0.952
nC-33 Tritriacontane	0.070	0.952	0.070	0.952	0.070	0.952	0.070	0.952
nC-34 Tetratriacontane	0.069	0.952	0.069	0.952	0.069	0.952	0.069	0.952
nC-35 Pentatriacontane	0.034	0.952	0.034	0.952	0.034	0.952	0.034	0.952

HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	57 CLIFTON HILL-A		34H CLIFTON HILL-A		309 CLIFTON HILL-A		207 CLIFTON HILL-A	
RCAT ID	2010356-05		2010356-07		2010356-09		2010356-11	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1050		1050		1050	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
C1-Naphthalenes	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
C2-Naphthalenes	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
C3-Naphthalenes	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
C4-Naphthalenes	0.225	5.000	0.225	5.000	0.225	5.000	0.225	5.000
Fluorene	0.514	5.000	0.514	5.000	0.514	5.000	0.514	5.000
C1-Fluorenes	0.514	5.000	0.514	5.000	0.514	5.000	0.514	5.000
C2-Fluorenes	0.514	5.000	0.514	5.000	0.514	5.000	0.514	5.000
C3- Fluorenes	0.514	5.000	0.514	5.000	0.514	5.000	0.514	5.000
Dibenzothiophene	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C1-Dibenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C2-Dibenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C3- Dibenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
Phenanthrene	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
C1-Phenanthrenes	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
C2-Phenanthrenes	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
C3-Phenanthrenes	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
C4-Phenanthrenes	0.383	5.000	0.383	5.000	0.383	5.000	0.383	5.000
Anthracene	0.398	5.000	0.398	5.000	0.398	5.000	0.398	5.000
Fluoranthene	0.683	5.000	0.683	5.000	0.683	5.000	0.683	5.000
Pyrene	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
C1- Pyrenes	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
C2- Pyrenes	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
C3- Pyrenes	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
C4- Pyrenes	0.809	5.000	0.809	5.000	0.809	5.000	0.809	5.000
Naphthobenzothiophene	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C-1 Naphthobenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C-2 Naphthobenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
C-3 Naphthobenzothiophenes	0.659	5.000	0.659	5.000	0.659	5.000	0.659	5.000
Benzo (a) Anthracene	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
Chrysene	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
C1- Chrysenes	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
C2- Chrysenes	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
C3- Chrysenes	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
C4- Chrysenes	1.098	5.000	1.098	5.000	1.098	5.000	1.098	5.000
Benzo (b) Fluoranthene	0.751	5.000	0.751	5.000	0.751	5.000	0.751	5.000
Benzo (k) Fluoranthene	0.706	5.000	0.706	5.000	0.706	5.000	0.706	5.000
Benzo (e) Pyrene	1.009	5.000	1.009	5.000	1.009	5.000	1.009	5.000
Benzo (a) Pyrene	0.843	5.000	0.843	5.000	0.843	5.000	0.843	5.000
Perylene	0.268	5.000	0.268	5.000	0.268	5.000	0.268	5.000
Indeno (1,2,3 - cd) Pyrene	1.960	5.000	1.960	5.000	1.960	5.000	1.960	5.000
Dibenzo (a,h) anthracene	1.711	5.000	1.711	5.000	1.711	5.000	1.711	5.000
Benzo (g,h,i) perylene	2.206	5.000	2.206	5.000	2.206	5.000	2.206	5.000

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	86 CLIFTON HILL-A	66 CLIFTON HILL-A	75A CLIFTON HILL-A	194A CLIFTON HILL-A
RCAT ID	2010356-13	2010356-15	2010356-17	2010356-19
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid				
Sample Size	1050	1050	1050	1050
Sample Unit-Basis	ml	ml	ml	ml
Units	ug/L	ug/L	ug/L	ug/L
nC-10 Decane	U	U	U	U
nC-11 Undecane	U	U	U	U
nC-12 Dodecane	U	U	U	U
nC-13 Tridecane	U	U	U	U
nC-14 Tetradecane	U	U	U	U
nC-15 Pentadecane	U	U	U	U
nC-16 Hexadecane	0.076 J	0.036 J	0.095 J	0.132 J
nC-17 Heptadecane	0.258 J	0.208 J	0.250 J	0.444 J
Pristane	0.199 J	0.200 J	0.261 J	0.227 J
nC-18 Octadecane	0.154 J	0.147 J	0.113 J	0.089 J
Phytane	0.096 J	0.100 J	0.114 J	0.118 J
nC-19 Nonadecane	U	0.051 J	0.041 J	U
nC-20 Eicosane	U	U	U	U
nC-21 Heneicosane	U	U	U	U
nC-22 Docosane	U	U	U	U
nC-23 Tricosane	U	U	U	U
nC-24 Tetracosane	U	U	U	U
nC-25 Pentacosane	U	U	U	U
nC-26 Hexacosane	U	U	U	U
nC-27 Heptacosane	U	U	U	U
nC-28 Octacosane	U	U	U	U
nC-29 Nonacosane	U	U	U	U
nC-30 Triacontane	U	U	U	U
nC-31 Hentriacontane	0.158 J	U	U	U
nC-32 Dotriacontane	0.089 J	U	U	U
nC-33 Tritriacontane	0.105 J	U	U	U
nC-34 Tetratriacontane	U	U	U	U
nC-35 Pentatriacontane	U	U	U	U
<b>Total Alkanes</b>	<b>1.13</b>	<b>0.742</b>	<b>0.873</b>	<b>1.01</b>

---

**Surrogate Recovery (%)**

5 Alpha Androstane	79	80	76	75
--------------------	----	----	----	----

---



## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	86 CLIFTON HILL-A	66 CLIFTON HILL-A	75A CLIFTON HILL-A	194A CLIFTON HILL-A
RCAT ID	2010356-13	2010356-15	2010356-17	2010356-19
Sample Matrix	Water	Water	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang	Mustang
% Moisture	0	0	0	0
% Lipid	0.000	0	0	0
Sample Size	1050	1050	1050	1050
Sample Unit-Basis	ml	ml	ml	ml
Units	ng/L	ng/L	ng/L	ng/L
Naphthalene	U	U	U	U
C1-Naphthalenes	U	U	U	U
C2-Naphthalenes	U	U	U	U
C3-Naphthalenes	U	U	U	U
C4-Naphthalenes	U	U	U	U
Fluorene	U	U	U	U
C1-Fluorenes	U	U	U	U
C2-Fluorenes	U	U	U	U
C3- Fluorenes	U	U	U	U
Dibenzothiophene	U	U	U	U
C1-Dibenzothiophenes	U	U	U	U
C2-Dibenzothiophenes	U	U	U	U
C3- Dibenzothiophenes	U	U	U	U
Phenanthrene	U	U	U	U
C1-Phenanthrenes	U	U	U	0.616 J
C2-Phenanthrenes	U	U	U	U
C3-Phenanthrenes	U	U	U	U
C4-Phenanthrenes	U	U	U	U
Anthracene	U	U	U	U
Fluoranthene	U	U	U	U
Pyrene	U	U	U	U
C1- Pyrenes	U	U	U	U
C2- Pyrenes	U	U	U	U
C3- Pyrenes	U	U	U	U
C4- Pyrenes	U	U	U	U
Naphthobenzothiophene	U	U	U	U
C-1 Naphthobenzothiophenes	U	U	U	U
C-2 Naphthobenzothiophenes	U	U	U	U
C-3 Naphthobenzothiophenes	U	U	U	U
Benzo (a) Anthracene	U	U	U	U
Chrysene	U	U	U	U
C1- Chrysenes	U	U	U	U
C2- Chrysenes	U	U	U	U
C3- Chrysenes	U	U	U	U
C4- Chrysenes	U	U	U	U
Benzo (b) Fluoranthene	U	U	U	U
Benzo (k) Fluoranthene	U	U	U	U
Benzo (e) Pyrene	U	U	U	U
Benzo (a) Pyrene	U	U	U	U
Perylene	U	U	U	U
Indeno (1,2,3 - cd) Pyrene	U	U	U	U
Dibenzo (a,h) anthracene	U	U	U	U
Benzo (g,h,i) perylene	U	U	U	U
<b>Total Aromatics</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.616</b>

**% Surrogate Recovery**

Phenanthrene d-10	75	75	73	74
-------------------	----	----	----	----

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	86 CLIFTON HILL-A		66 CLIFTON HILL-A		75A CLIFTON HILL-A		194A CLIFTON HILL-A	
RCAT ID	2010356-13		2010356-15		2010356-17		2010356-19	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1050		1050		1050	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ug/L		ug/L		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.016	0.952	0.016	0.952	0.016	0.952	0.016	0.952
nC-11 Undecane	0.125	9.804	0.012	0.952	0.012	0.952	0.012	0.952
nC-12 Dodecane	0.144	9.804	0.014	0.952	0.014	0.952	0.014	0.952
nC-13 Tridecane	0.111	9.804	0.011	0.952	0.011	0.952	0.011	0.952
nC-14 Tetradecane	0.267	9.804	0.026	0.952	0.026	0.952	0.026	0.952
nC-15 Pentadecane	0.235	9.804	0.023	0.952	0.023	0.952	0.023	0.952
nC-16 Hexadecane	0.220	9.804	0.021	0.952	0.021	0.952	0.021	0.952
nC-17 Heptadecane	0.470	9.804	0.046	0.952	0.046	0.952	0.046	0.952
Pristane	0.455	9.804	0.044	0.952	0.044	0.952	0.044	0.952
nC-18 Octadecane	0.691	9.804	0.067	0.952	0.067	0.952	0.067	0.952
Phytane	0.711	9.804	0.069	0.952	0.069	0.952	0.069	0.952
nC-19 Nonadecane	0.386	9.804	0.038	0.952	0.038	0.952	0.038	0.952
nC-20 Eicosane	0.406	9.804	0.039	0.952	0.039	0.952	0.039	0.952
nC-21 Heneicosane	0.337	9.804	0.033	0.952	0.033	0.952	0.033	0.952
nC-22 Docosane	0.682	9.804	0.066	0.952	0.066	0.952	0.066	0.952
nC-23 Tricosane	0.381	9.804	0.037	0.952	0.037	0.952	0.037	0.952
nC-24 Tetracosane	0.603	9.804	0.059	0.952	0.059	0.952	0.059	0.952
nC-25 Pentacosane	1.910	9.804	0.186	0.952	0.186	0.952	0.186	0.952
nC-26 Hexacosane	1.616	9.804	0.157	0.952	0.157	0.952	0.157	0.952
nC-27 Heptacosane	1.277	9.804	0.124	0.952	0.124	0.952	0.124	0.952
nC-28 Octacosane	2.044	9.804	0.199	0.952	0.199	0.952	0.199	0.952
nC-29 Nonacosane	1.539	9.804	0.150	0.952	0.150	0.952	0.150	0.952
nC-30 Triacontane	0.851	9.804	0.083	0.952	0.083	0.952	0.083	0.952
nC-31 Hentriacontane	0.865	9.804	0.084	0.952	0.084	0.952	0.084	0.952
nC-32 Dotriacontane	0.495	9.804	0.048	0.952	0.048	0.952	0.048	0.952
nC-33 Tritriacontane	0.725	9.804	0.070	0.952	0.070	0.952	0.070	0.952
nC-34 Tetratriacontane	0.711	9.804	0.069	0.952	0.069	0.952	0.069	0.952
nC-35 Pentatriacontane	0.351	9.804	0.034	0.952	0.034	0.952	0.034	0.952

*Refers to  
deletion*

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	86 CLIFTON HILL-A		66 CLIFTON HILL-A		75A CLIFTON HILL-A		194A CLIFTON HILL-A	
RCAT ID	2010356-13		2010356-15		2010356-17		2010356-19	
Sample Matrix	Water		Water		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang		Mustang	
% Moisture	0		0		0		0	
% Lipid	0		0		0		0	
Sample Size	1050		1050		1050		1050	
Sample Unit-Basis	ml		ml		ml		ml	
Units	ng/L		ng/L		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
C1-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
C2-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
C3-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
C4-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762	0.214	4.762
Fluorene	0.490	4.762	0.490	4.762	0.490	4.762	0.490	4.762
C1-Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762	0.490	4.762
C2-Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762	0.490	4.762
C3- Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762	0.490	4.762
Dibenzothiophene	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C1-Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C2-Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C3- Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
Phenanthrene	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
C1-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
C2-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
C3-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
C4-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762	0.365	4.762
Anthracene	0.379	4.762	0.379	4.762	0.379	4.762	0.379	4.762
Fluoranthene	0.650	4.762	0.650	4.762	0.650	4.762	0.650	4.762
Pyrene	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
C1- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
C2- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
C3- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
C4- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762	0.771	4.762
Naphthobenzothiophene	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C-1 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C-2 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
C-3 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762	0.627	4.762
Benzo (a) Anthracene	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
Chrysene	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
C1- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
C2- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
C3- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
C4- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762	1.046	4.762
Benzo (b) Fluoranthene	0.715	4.762	0.715	4.762	0.715	4.762	0.715	4.762
Benzo (k) Fluoranthene	0.672	4.762	0.672	4.762	0.672	4.762	0.672	4.762
Benzo (e) Pyrene	0.961	4.762	0.961	4.762	0.961	4.762	0.961	4.762
Benzo (a) Pyrene	0.803	4.762	0.803	4.762	0.803	4.762	0.803	4.762
Perylene	0.255	4.762	0.255	4.762	0.255	4.762	0.255	4.762
Indeno (1,2,3 - cd) Pyrene	1.866	4.762	1.866	4.762	1.866	4.762	1.866	4.762
Dibenzo (a,h) anthracene	1.629	4.762	1.629	4.762	1.629	4.762	1.629	4.762
Benzo (g,h,i) perylene	2.101	4.762	2.101	4.762	2.101	4.762	2.101	4.762

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	D-8501 NO.2	LCS	LCSD
RCAT ID	2010356-21	LCS2010358A	LCS2010358ADUP
Sample Matrix	Oil	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang
% Moisture	0	0	0
% Lipid			
Sample Size	510	1000	1000
Sample Unit-Basis	mg	ml	ml
Units	ug/g	ug/L	ug/L
nC-10 Decane	1790	2.06	2.35
nC-11 Undecane	212	2.30	2.65
nC-12 Dodecane	867	2.65	3.08
nC-13 Tridecane	386	2.62	3.14
nC-14 Tetradecane	137	2.64	3.19
nC-15 Pentadecane	U	2.83	2.78
nC-16 Hexadecane	3.39 J	2.85	2.87
nC-17 Heptadecane	1.17 J	2.66	2.66
Pristane	U	3.13	2.98
nC-18 Octadecane	U	2.86	2.71
Phytane	1.11 J	2.97	2.84
nC-19 Nonadecane	U	2.98	2.75
nC-20 Eicosane	U	3.02	2.97
nC-21 Heneicosane	U	3.01	2.94
nC-22 Docosane	U	3.01	2.92
nC-23 Tricosane	U	3.01	2.92
nC-24 Tetracosane	U	2.97	2.86
nC-25 Pentacosane	U	2.69	2.69
nC-26 Hexacosane	U	2.64	2.62
nC-27 Heptacosane	U	2.55	2.52
nC-28 Octacosane	U	2.46	2.40
nC-29 Nonacosane	U	2.26	2.22
nC-30 Triacontane	U	3.28	3.13
nC-31 Hentriacontane	U	2.79	2.68
nC-32 Dotriacontane	U	2.34	2.16
nC-33 Tritriacontane	U	3.75	3.61
nC-34 Tetratriacontane	U	3.07	2.92
nC-35 Pentatriacontane	U	2.43	2.45
<b>Total Alkanes</b>	<b>3400</b>	<b>77.8</b>	<b>78.0</b>
<b>Surrogate Recovery (%)</b>			
5 Alpha Androstane	0	55	52

## HOVENSA FINAL RESULTS-CORRECTED

Louisiana State University  
Department of Environmental Sciences  
Response & Chemical Assessment Team

Project Client: Hovensa  
Project Name: St. Croix Spill

Client ID	D-8501 NO.2	LCS	LCSD
RCAT ID	2010356-21	LCS2010358A	LCS2010358ADUP
Sample Matrix	Oil	Water	Water
Analytical Instrument	Mustang	Mustang	Mustang
% Moisture	0	0	0
% Lipid	0	0	0
Sample Size	510	1000	1000
Sample Unit-Basis	mg	ml	ml
Units	ug/Kg	ng/L	ng/L
Naphthalene	52100	1880	2070
C1-Naphthalenes	43900	U	U
C2-Naphthalenes	14000	U	U
C3-Naphthalenes	U	U	U
C4-Naphthalenes	U	U	U
Fluorene	U	2830	2680
C1-Fluorenes	U	U	U
C2-Fluorenes	U	U	U
C3- Fluorenes	U	U	U
Dibenzothiophene	1.05 J	2740	2590
C1-Dibenzothiophenes	0.818 J	U	U
C2-Dibenzothiophenes	U	U	U
C3- Dibenzothiophenes	U	U	U
Phenanthrene	0.720 J	2440	2300
C1-Phenanthrenes	U	U	U
C2-Phenanthrenes	U	U	U
C3-Phenanthrenes	U	U	U
C4-Phenanthrenes	U	U	U
Anthracene	0.496 J	2800	2660
Fluoranthene	U	2490	2540
Pyrene	U	2530	2560
C1- Pyrenes	U	1.08 J	1.08 J
C2- Pyrenes	U	U	U
C3- Pyrenes	U	U	U
C4- Pyrenes	U	U	U
Naphthobenzothiophene	U	U	U
C-1 Naphthobenzothiophenes	0.655 J	U	U
C-2 Naphthobenzothiophenes	U	U	U
C-3 Naphthobenzothiophenes	U	U	U
Benzo (a) Anthracene	U	2520	2510
Chrysene	U	2510	2530
C1- Chrysenes	U	U	U
C2- Chrysenes	U	U	U
C3- Chrysenes	U	U	U
C4- Chrysenes	U	U	U
Benzo (b) Fluoranthene	U	2310	2300
Benzo (k) Fluoranthene	U	2850	2820
Benzo (e) Pyrene	U	2260	2310
Benzo (a) Pyrene	U	1460	1630
Perylene	U	2030	2050
Indeno (1,2,3 - cd) Pyrene	U	1390	1390
Dibenzo (a,h) anthracene	U	1690	1720
Benzo (g,h,i) perylene	U	1390	1500
<b>Total Aromatics</b>	<b>110000</b>	<b>38100</b>	<b>38200</b>

**% Surrogate Recovery**

Phenanthrene d-10	0	53	50
-------------------	---	----	----

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	D-8501 NO.2		LCS		LCSD	
RCAT ID	2010356-21		LCS2010358A		LCS2010358ADUP	
Sample Matrix	Oil		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang	
% Moisture	0		0		0	
% Lipid	0		0		0	
Sample Size	510		1000		1000	
Sample Unit-Basis	mg		ml		ml	
Units	ug/g		ug/L		ug/L	
	MDL	RQL	MDL	RQL	MDL	RQL
nC-10 Decane	0.166	9.804	0.017	1.000	0.017	1.000
nC-11 Undecane	0.125	9.804	0.013	1.000	0.013	1.000
nC-12 Dodecane	0.144	9.804	0.015	1.000	0.015	1.000
nC-13 Tridecane	0.111	9.804	0.011	1.000	0.011	1.000
nC-14 Tetradecane	0.267	9.804	0.027	1.000	0.027	1.000
nC-15 Pentadecane	0.235	9.804	0.024	1.000	0.024	1.000
nC-16 Hexadecane	0.220	9.804	0.022	1.000	0.022	1.000
nC-17 Heptadecane	0.470	9.804	0.048	1.000	0.048	1.000
Pristane	0.455	9.804	0.046	1.000	0.046	1.000
nC-18 Octadecane	0.691	9.804	0.070	1.000	0.070	1.000
Phytane	0.711	9.804	0.073	1.000	0.073	1.000
nC-19 Nonadecane	0.386	9.804	0.039	1.000	0.039	1.000
nC-20 Eicosane	0.406	9.804	0.041	1.000	0.041	1.000
nC-21 Heneicosane	0.337	9.804	0.034	1.000	0.034	1.000
nC-22 Docosane	0.682	9.804	0.070	1.000	0.070	1.000
nC-23 Tricosane	0.381	9.804	0.039	1.000	0.039	1.000
nC-24 Tetracosane	0.603	9.804	0.062	1.000	0.062	1.000
nC-25 Pentacosane	1.910	9.804	0.195	1.000	0.195	1.000
nC-26 Hexacosane	1.616	9.804	0.165	1.000	0.165	1.000
nC-27 Heptacosane	1.277	9.804	0.130	1.000	0.130	1.000
nC-28 Octacosane	2.044	9.804	0.208	1.000	0.208	1.000
nC-29 Nonacosane	1.539	9.804	0.157	1.000	0.157	1.000
nC-30 Triacontane	0.851	9.804	0.087	1.000	0.087	1.000
nC-31 Hentriacontane	0.865	9.804	0.088	1.000	0.088	1.000
nC-32 Dotriacontane	0.495	9.804	0.051	1.000	0.051	1.000
nC-33 Tritriacontane	0.725	9.804	0.074	1.000	0.074	1.000
nC-34 Tetratriacontane	0.711	9.804	0.073	1.000	0.073	1.000
nC-35 Pentatriacontane	0.351	9.804	0.036	1.000	0.036	1.000

## HOVENSA FINAL RESULTS-CORRECTED

**Louisiana State University**  
**Department of Environmental Sciences**  
**Response & Chemical Assessment Team**

Project Client: Hovensa  
 Project Name: St. Croix Spill

Client ID	D-8501 NO.2		LCS		LCSD	
RCAT ID	2010356-21		LCS2010358A		LCS2010358ADUP	
Sample Matrix	Oil		Water		Water	
Analytical Instrument	Mustang		Mustang		Mustang	
% Moisture	0		0		0	
% Lipid	0		0		0	
Sample Size	510		1000		1000	
Sample Unit-Basis	mg		ml		ml	
Units	ug/Kg		ng/L		ng/L	
	MDL	RQL	MDL	RQL	MDL	RQL
Naphthalene	0.214	4.762	0.214	4.762	0.214	4.762
C1-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762
C2-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762
C3-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762
C4-Naphthalenes	0.214	4.762	0.214	4.762	0.214	4.762
Fluorene	0.490	4.762	0.490	4.762	0.490	4.762
C1-Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762
C2-Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762
C3- Fluorenes	0.490	4.762	0.490	4.762	0.490	4.762
Dibenzothiophene	0.627	4.762	0.627	4.762	0.627	4.762
C1-Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762
C2-Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762
C3- Dibenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762
Phenanthrene	0.365	4.762	0.365	4.762	0.365	4.762
C1-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762
C2-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762
C3-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762
C4-Phenanthrenes	0.365	4.762	0.365	4.762	0.365	4.762
Anthracene	0.379	4.762	0.379	4.762	0.379	4.762
Fluoranthene	0.650	4.762	0.650	4.762	0.650	4.762
Pyrene	0.771	4.762	0.771	4.762	0.771	4.762
C1- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762
C2- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762
C3- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762
C4- Pyrenes	0.771	4.762	0.771	4.762	0.771	4.762
Naphthobenzothiophene	0.627	4.762	0.627	4.762	0.627	4.762
C-1 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762
C-2 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762
C-3 Naphthobenzothiophenes	0.627	4.762	0.627	4.762	0.627	4.762
Benzo (a) Anthracene	1.046	4.762	1.046	4.762	1.046	4.762
Chrysene	1.046	4.762	1.046	4.762	1.046	4.762
C1- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762
C2- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762
C3- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762
C4- Chrysenes	1.046	4.762	1.046	4.762	1.046	4.762
Benzo (b) Fluoranthene	0.715	4.762	0.715	4.762	0.715	4.762
Benzo (k) Fluoranthene	0.672	4.762	0.672	4.762	0.672	4.762
Benzo (e) Pyrene	0.961	4.762	0.961	4.762	0.961	4.762
Benzo (a) Pyrene	0.803	4.762	0.803	4.762	0.803	4.762
Perylene	0.255	4.762	0.255	4.762	0.255	4.762
Indeno (1,2,3 - cd) Pyrene	1.866	4.762	1.866	4.762	1.866	4.762
Dibenzo (a,h) anthracene	1.629	4.762	1.629	4.762	1.629	4.762
Benzo (g,h,i) perylene	2.101	4.762	2.101	4.762	2.101	4.762